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OF THE

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

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1900 RENTON, J. CRAWFORD, M.D., F.F.P.S.G., 1 Woodside Terrace.
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1888 c RICHMOND, AND., M.B., 57 Love Street, Paisley.
1903 RICHMOND, THOS., L.R.C.P.E., L.F.P.S.G., 4 Burnbank Gardens.
1901 RIDDELL, JAS. R., L.R.C.P.S.E., 1 Royal Crescent, W.
1885 RITCHIE, JOHN, M.B., 12 Belmont Street.
1899 c RITCHIE, WILLIAM, M.B., L.R.C.P.S.E., 327 St. George's Road.
1887 ROBERTSON, J. M'GREGOR, M.B., F.F.P.S.G., 26 Buckingham Terrace.
1901 ROWAND, ANDREW, M.A., B.Sc., M.D., 18 Barns Street, Ayr.
1893 c RUSSELL, A. W., M.A., M.B., 11 Royal Crescent, W.
1893 RUSSELL, THOMAS, M.B., 27A Westmuir Street, Parkhead.
1897 RUTHERFORD, JAMES, L.R.C.P.S.E., L.F.P.S.G., St. Mungo, York Road, Harrogate.
1892 SALMON, CHAS. E., L.R.C.P.S.E., L.F.P.S.G., Tarbet House, Tarbet.
1905 SHANNON, DAVID, M.B., Ch.B., 270 Bath Street.
1885 * SLOAN, ARCH., M.B., F.F.P.S.G., 21 Elmbank Street.
1885 * c SLOAN, SAMUEL, M.D., F.F.P.S.G., 5 Somerset Place.
1898 SLOAN, SAMUEL MACFARLANE, M.B., 130 Hyndland Drive.
1905 SMART, MARGARET H., M.B., Ch.B., 21 Holyrood Crescent.

1904 SMITH, DAVID, M.B., C.M., 238 Crown Street.
1896 SMITH, E. DOROTHEA CHALMERS, M.B., 13 Broompark Drive, Dennistoun.
1886 *c* STARK, J. NIGEL, M.D., F.F.P.S.G., 4 Newton Place.
1901 STEEN, ALBERT A. F., M.B., 87 Albert Road, Crosshill.
1905 STEWART, ARCHD. DUNLOP, M.B., L.R.C.S.E., 2 Walworth Terrace, Kent Road.
1901 STEWART, JOHN, M.D., 3 Royal Crescent, Crosshill.
1887 *c* SYME, CAMPBELL, L.R.C.P.E., L.F.P.S.G., Kilmalcolm.
1897 SYSON, J. COCKBURN, M.D., 1 Broompark Terrace, Dennistoun.
1903 TAYLOR, H. Y. C., M.B., 6 Brighton Terrace, Govan.
1899 TAYLOR, J. C. MEARNS, M.B., 3 Eglinton Place, Skelmorlie.
1901 TEACHER, JOHN H., M.A., M.D., F.F.P.S.G., 32 Kingsborough Gardens.
1901 THOMSON, ALEX., M.B., 8 Hamilton Park Terrace.
1895 THOMSON, J. GEMMILL, L.R.C.P.S.E., L.F.P.S.G., 16 Kilbowie Gardens, Clydebank.
1892 *c* TODD, GEO. BELL, M.B., 40 Lansdowne Crescent, W.
1901 TODD, JAMES, M.D., 3 Eastpark Terrace.
1901 TOLMIE, JAS. A., M.A., M.B., Olive Villa, Drive Road, Govan.
1898 *c* TURNER, GEO. N., M.B., 23 Royal Crescent, W.
1903 TURNER, W., L.R.C.P.S.E., Saltcoats.
1903 WALKER, A. B., M.D., 208 Battlefield Road, Langside.
1885 * *c* WALLACE, ABRAHAM, M.D., F.F.P.G.S., 39 Harley Street, London.
1900 WALLACE, JOHN VEITCH, L.R.C.S.E., L.M., 290 Langside Road.
1889 WALLACE, J. W., M.D., 251 Bath Street.
1902 *c* WATSON, DAVID, M.B., 116 Mains Street, Blythswood Square.
1904 WATSON, ROBERT M'LEOD, L.R.C.P.S.E., Gartmore Villa, Sinclair Drive.
1904 WATSON, WILLIAM, M.D., Claremont, Langside.
1903 WEIR, EDWARD R., B.Sc., M.B., 236 Stirling Road.
1901 WEIR, JAMES, M.B., 24 Abbotsford Place.
1903 WEIR, ROBERT, M.B., 6 Corunna Street.
1897 WEST, J. THOMSON, M.B., Netherton House, South Avenue, Govan.
1896 WHITELOCK, R. H. A., M.B., F.R.C.S., 6 Banbury Road, Oxford.
1905 WILSON, ALEX. JOHNSTONE, Silverdale, Calderbank, Airdrie.
1885 WILSON, H. GARNETT, M.B., 5 St. James' Terrace.
1902 WILSON, JAMES, M.B., 18 Walmer Crescent.
1903 WILSON, JAS. PATERSON, M.B., Redhurst, Irvine.
1891 WILSON, WM. M'KNIGHT, 30 Grafton Square.
1903 WOOD, ROBERT TAIT, M.B., Bearsden.
1892 WRIGHT, JOHN C., M.B., 23 Westminster Terrace.
1903 YOUNG, ALFRED A., M.B., 2 Woodside Terrace.
1902 YOUNG, J. J. TAYLOR, M.B., Sornhill, Maxwell Drive, Pollokshields.

LAWS.

—o—

I. The Society shall be called the "GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY."

II. The object of the Society shall be the promotion of Science and Art in connection with Midwifery and the Diseases of Women and Children.

III. The Society shall be composed of regularly qualified Medical Practitioners who have been duly elected.

IV. The Society shall consist of Ordinary, Corresponding, and Honorary Fellows.

V. At the last meeting in each session, the Ordinary Fellows shall elect the following Office-bearers: — Honorary President, President, two Vice-Presidents, Treasurer, Secretary, Editor of *Transactions*, Reporting Secretary, and Pathologist, who, with six Ordinary Fellows to be elected at the same time, and the retiring President, shall constitute the Council; and four shall form a quorum.

VI. The Honorary President, President, and Vice-Presidents shall be eligible for election for not more than two consecutive sessions; the Ordinary Members of Council for three sessions.

VII. The duties of the different Office-bearers shall correspond to what is understood in common use and wont.

VIII. The management of the Society shall be vested in the Ordinary Fellows.

IX. Admission to the Society shall be by ballot; and no candidate shall be declared duly elected who has not two-thirds of the votes in his favour.

X. All candidates for election into the Society must be proposed by three Fellows, two of whom must have personal knowledge of the candidate.

XI. The name of each candidate must be formally notified to the Secretary, for insertion in the billet calling the meeting, at least one week before the meeting at which the ballot takes place.

XII. The Council may nominate for election as Honorary or Corresponding Fellows such practitioners as they deem worthy of such distinction, and their election shall take place in the same way as for Ordinary Fellows of the Society.

XIII. Meetings shall be held at Half-past Eight P.M. on the fourth Wednesday of each month, from October to May, both inclusive, excepting in December when the meeting shall be held on the third Wednesday. An additional meeting may be called at any time by the Council.

XIV. The President shall call an extraordinary meeting when requested to do so in writing by five Ordinary Fellows.

XV. Fresh Specimens shall be shown at the beginning of a meeting, and the question of discussion on any Fresh Specimen shall be left to the discretion of the chairman of the meeting.

XVI. There shall be an Editorial Committee consisting of the following Members of Council, viz.:—President, Secretary, Treasurer, Editor of *Transactions*, and Reporting Secretary, with power to add to their number; the Secretary to be convener.

XVII. A brief synopsis of each paper shall be submitted to the Secretary at least one week before the meeting.

XVIII. All papers or other communications which have been read to the Society shall be submitted to the Editorial Committee, with a view to publication in the *Glasgow Medical Journal*, and, afterwards, in the *Transactions* of the Society.

XIX. In the case of any communication containing illustrations, the Council may, on the recommendation of the Editorial Committee, contribute from the funds of the Society towards the author's share of the expense involved.

XX. Fellows who desire to have their remarks at any meeting published in the *Transactions* of the Society, shall communicate the

same in writing to the Editor of *Transactions* not later than three days after the meeting.

XXI. The *Transactions* shall be issued to those Fellows who are on the roll at the time of publication, and who have paid one or more subscriptions for the period covered by the volume.

XXII. The Annual Subscription shall be Five Shillings.

XXIII. Any Fellow wishing to resign shall intimate the same in writing to the Secretary, who shall read the intimation to the Society at the next ordinary meeting, when his resignation may be accepted provided that all arrears of subscriptions, if any, shall have been paid.

XXIV. Any Fellow who is three years in arrears in the payment of his annual subscriptions, and who does not pay such arrears after being written to by the Treasurer, that, failing payment, his Fellowship will be determined, shall, *ipso facto*, cease to be a Fellow of the Society, and his name shall be deleted from the Roll of Fellows.

XXV. No Fellow shall be expelled from the Society unless by the votes of three-fourths of the Fellows present at a special meeting, of which due notice shall be given by the Secretary.

XXVI. None of these Rules shall be altered, amended, or expunged, unless by the votes of three-fourths of those present at an ordinary monthly meeting, a month's notice having been previously given by the Secretary of the proposed alteration.

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TRANSACTIONS

OF THE

GLASGOW

OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

MEETINGS OF SESSION, 1904-1905.

MEETING I.—26TH OCTOBER, 1904.

The President, DR. J. K. KELLY, *in the Chair.*

New Fellows.—The following were admitted as ordinary Fellows:—James Laurie, M.B., C.M.; James Burnett Lawson, M.D.

I.—SPECIMEN.

BY DR. W. RITCHIE.

Dr. Ritchie showed a pedunculated fibroid tumour of the labium majus.

II.—PRESIDENTIAL ADDRESS ON EXTRA-UTERINE PREGNANCY, FOLLOWED BY A LANTERN DEMONSTRATION ILLUSTRATING THE SUBJECT.

BY DR. J. K. KELLY.

LADIES AND GENTLEMEN,—My first duty is to thank you for the honour you have conferred upon me in electing me to the presidency of this Society. On entering upon the duties of

the office, I must confess to a considerable feeling of misgiving when I ask myself whether I shall be able to worthily carry on the work so well done by former presidents. But I shall simply do what I can, and I am encouraged by the hope that, as I occupy this chair by your goodwill, the same goodwill may continue all through to make my duties easy. And I may take this opportunity to ask every member to try to take some part in our discussions here. One is apt to think that the cases he meets with are not sufficiently important to bring before the Society; but there is no case that is not possessed of some interest, and matter for discussion may arise about even the most trifling cases. Often, indeed, it is the trifling cases that raise the most puzzling questions. I trust, therefore, with your co-operation, we may be able at the end of the year to look back with satisfaction on a record of work well done.

I propose to-night to lay before you a few considerations regarding extra-uterine pregnancy. The specimen from the first case on which I operated is now in the Hunterian Museum, and is a most beautiful example of ruptured tubal pregnancy. It occurred in 1892, and since then I have seen about a hundred cases in various stages of development from the earliest up to nearly full-time. I may, therefore, lay claim to some personal acquaintance with the subject, and it has naturally occupied my thoughts a good deal. I trust, therefore, that although I may not bring before you anything very new or startling, you may be interested in viewing the subject from an independent standpoint.

I prefer the word "extra-uterine" to the word "ectopic," to denote a pregnancy situated outside of the uterus. Some of the sites which the placenta occasionally occupies within the uterus, and which are therefore not extra-uterine, are, in the truest sense, ectopic. Placenta prævia, *e.g.*, occupies a situation which is quite abnormal, and which we may feel entitled to say was never by nature intended for the site of the placenta. In the same way a pregnancy in the substance of the uterine wall, such as is present in what is called an interstitial tubal pregnancy, is ectopic, while it is extra-uterine only in the sense that the placenta is not attached to the endometrium. The word ectopic, therefore, should be taken as covering a wider area than the word extra-uterine, and will be taken in this sense if used at all in this paper.

An extra-uterine pregnancy, then, may be defined as a pregnancy which results from the settlement of the pregnant ovum elsewhere than in the endometrium.

At first sight it would appear somewhat incredible that an ovum could settle anywhere except on a mucous membrane, and if that were the case the only possible extra-uterine pregnancy would be a tubal pregnancy. But the theory of the embedding of the ovum which is at present generally accepted, would almost indicate that the impregnated ovum can settle on any tissue in which it can obtain the blood-supply necessary for its growth. We might almost say that when the impregnated ovum has reached a certain stage in its development, it will settle and fix itself wherever it may be if the tissue on which it lies presents a surface through which it can penetrate into a sufficiently vascular area. If this be the case, we must admit that, so far as histological conditions are concerned, peritoneal and ovarian pregnancies are as much within the region of possibility as are tubal pregnancies. Why they are not so common, and are indeed so very rare, may be suggested to us by future considerations.

But why should we have an extra-uterine pregnancy at all? What circumstances determine the settlement of the ovum in an extra-uterine situation?

Various conditions have been suggested as likely to facilitate its occurrence; but before considering these, we must have a clear conception of the conditions which enable normal pregnancy to occur. If we are able to attain this, it may then be more easy to arrive at an explanation of the deviations from the normal which result in extra-uterine pregnancy.

The first step towards pregnancy is the introduction of spermatozoa to the female genital canal. Now, it is a well-ascertained fact that for this introduction it is sufficient that the spermatozoa should be deposited on the vulva, though, as a rule, the deposition takes place in the upper part of the vagina. In either case, the spermatozoa have some distance to travel before they reach the situation in the upper part of the uterus in which we usually find the placenta attached.

Where the union of the sperm and germ, that union of male and female elements which constitutes impregnation, usually takes place in the human subject has not been ascertained. We may regard it as possible that such a union takes place not infrequently in the vagina, but it is, of course, useless there. It may be that in some cases impregnation takes place in the uterine cavity, and so brings about a low attachment of the ovum, such as we have in placenta prævia. It may be that the usual seat of its occurrence is in the Fallopian tube or upon the ovary, where spermatozoa have sometimes been

found, even in the human subject, and where they are frequently found in lower animals.

The spermatozoa, in fact, have a remarkable power of locomotion, the speed of which has been calculated by Henle, who supposes that a spermatozoön can travel in one minute about four hundred times its own length. In a prostitute, who died during coitus, Birch-Hirschfeld found spermatozoa in the tubes when he made a *post-mortem* examination sixteen hours after death. This case, however, I may note in passing, is not to be relied on, as spermatozoa may linger long in the genital canal in an active condition, and those found in this case may have resulted from a former coitus. Dührssen, *e.g.*, found spermatozoa in a Fallopian tube which he removed more than three weeks after coitus had taken place.

The rapidity of the movement of spermatozoa, however, is not of so much importance as the direction of the movement, as they could not reach the ovum unless they were directed inwards along the genital canal. Why, then, does the sperm take this direction ?

I think there is no doubt that the reason why it advances inwards is that its movement is naturally directed against the outward flow caused by the ciliated epithelial lining of the uterus and tubes. This outward flow carries with it such inert substances as the ovum and desquamated epithelium and detritus, which have no inherent mobility, but a flagellate cell such as the spermatozoön moves against the stream, just as the trout in the river naturally and most easily moves against the current. The essential condition for the advance of the sperm along the genital canal may be regarded as the persistence of the flow caused by the ciliary movement of the genital epithelium. If there is no such flow, the sperm will simply move about in indeterminate directions. Hausmann relates having found living spermatozoa in the cervix seven and a half days after coitus.

This ciliary current most probably exists, not only in the uterus and tubes, but also in the peritoneal space surrounding the fimbriated ends of the tubes. It is by this ciliary flow that the ovum discharged from the Graafian follicle is caught and carried into the tube, just as it is by this flow that the spermatozoa are directed to meet it in its passage along the canal. At what part of the canal this meeting normally takes place we do not know ; but the frequency of tubal pregnancy indicates that it often takes place in the tube, if indeed it does not point to the site of impregnation being *usually* above the uterus.

The mere fact that pregnancy normally goes on in the uterus does not prove that impregnation occurs there. Indeed, the probability rather is that the impregnated ovum is already different from the unimpregnated before it reaches the uterine cavity. Otherwise, why should its fate there differ from that of the unimpregnated ovum?

Without, however, entering further into the question of normal pregnancy, it is evident from what has been said that for the union of sperm and germ in the tube a healthy mucous membrane, with active cilia, is necessary. Any inflammatory or other disease of endometrium or lining of tube which destroyed the ciliated epithelium, would prevent impregnation altogether. It was Lawson Tait's opinion, and has since been maintained by many gynæcologists, that salpingitis—desquamative salpingitis, as Tait named it—was the condition that favoured the occurrence of tubal pregnancy; but not only the theoretical reason I have given, but the results of microscopic examination of the tube as well, have shown that this cannot be the case. Desquamative salpingitis, by putting a stop to the ciliary flow, would prevent the union of sperm and germ, and it is, of course, self-evident that closure of the tube at any part would have the same effect. In any consideration of the causation of extra-uterine pregnancy, therefore, these conditions should be at once put aside.

Now, if we admit that for extra-uterine as for normal pregnancy the genital canal must be in a condition to further the meeting of the male and female elements, we must look for the cause of extra-uterine pregnancy in the impregnated ovum itself, rather than in the canal through which it passes. And when we ask what condition of the ovum would bring about extra-uterine pregnancy, the answer that at once suggests itself is, that before it has travelled to the uterus it has reached a stage of the pregnant condition in which it is fitted to attach itself to the maternal structures. To illustrate this let us take that interesting phenomenon, the external transit of the ovum, *i.e.*, the passage of the ovum from the ovary of one side to the tube of the other side. It may be supposed that in this case a longer interval than usual would elapse between the escape of the ovum from the Graafian follicle and its reception into the uterus, and if the ovum were impregnated shortly after leaving the ovary, this interval might be long enough to allow the pregnant condition to become sufficiently advanced for the embedding of the ovum to occur before it reached the uterus. We might formulate

this theory by saying that anything that unduly retards or prolongs the passage of the impregnated ovum from the ovary to the uterus tends to cause extra-uterine pregnancy. And under this theory we can classify many of the conditions that have been thought to favour its occurrence.

Many authors are of opinion that tortuosity of the tube favours tubal pregnancy, whether this tortuosity be due to the persistence of a fœtal condition or to flexions caused by adhesions, and this may well be the case. It is evident that tortuosity of the tube would delay the passage of the ovum in two ways—by giving it actually a longer canal to traverse, seeing that a tortuous tube is usually an elongated tube, and by cross-currents and eddies being set up in the fluid within the tube by the alternate dilatations and constrictions of the canal.

On the other hand, the onward passage of the ovum may be delayed by slowness of the ciliary stream, and it is here that an antecedent salpingitis may act by destroying some of the ciliated epithelium. In some cases, extra-uterine pregnancy is found associated with salpingitis, and may result from it in this way, though we must agree with Martin that in many of these cases the salpingitis met with is as probably as not secondary to the tubal pregnancy.

Another theory which has been advanced in an interesting paper by Moericke, is perhaps worthy of consideration. This theory is that tubal pregnancy is a reversion to an earlier type. In some lower animals the ovum naturally develops in the tube, and on the principle that during development the individual ovum passes through the stages of the evolution of its species, and may in some part or organ remain at one of these stages, it is possible that the tube in some women may retain an early or atavistic condition. This reversion may be either structural or functional, and with it other phases of reversion may be associated, such as twin pregnancy. Twin pregnancy, in fact, is proportionally more common in tubal than in uterine pregnancy; and our Secretary has reported a case in which a tubal pregnancy was associated with intra-uterine twins. Several cases of twins, both in the tubes or one in the tube and one in the uterus, have been reported. Olshausen explains such cases by supposing that the twins mutually hinder each other, and accordingly either one or both may be delayed in the tube; but it is possible that the real explanation is to be found in reversion of type.

Structural reversion, *e.g.*, may explain those cases, which are not infrequent, where both tubes become pregnant, as well as

those remarkable cases where the same tube has been found twice pregnant.

Whatever the peculiar condition that delays the ovum in its passage towards the uterus, there is no doubt that in cases of tubal pregnancy the ovum, while in the tube, reaches that stage of development which enables it to settle upon and embed itself in the wall of the tube. What is that condition? And for its successful result, does it require a corresponding stage of development in the tubal wall? Is there, in fact, a preparation of the wall of the tube, such as we find in the uterine wall, in anticipation of pregnancy? Is there a formation of decidua?

On this subject the result of investigation is not yet quite decided. Many cases are reported in which the most careful research has failed to discover any decidua in the tube. In other cases, decidual cells have been found in detached parts of the mucous membrane, and in still others the whole tube has formed a decidua, and decidua has been found in the non-pregnant tube and in the uterus as well. In some cases, again, the formation of the decidua seems to follow rather than precede the embedding of the ovum.

Perhaps we ought not to lay much stress upon the presence of decidual cells in the causation of pregnancy, seeing that similar cells have been occasionally found on the peritoneum and ovary as well as in the uterus and tubes. Their function is doubtful, and cells of a similar kind are sometimes found in endometritis. Zweifel has even met with them in the tubes in salpingitis, independent of pregnancy. Perhaps they merely represent a phase of degeneration, or at least of nutritive change in the connective tissue cells of the mucous membrane, and, in the uterus, are well named decidual, as they enable the membrane in which they are found to be thrown off freely from the surface. At anyrate, we may assert from the consideration of tubal pregnancy that a decidua is not a condition necessary to the occurrence of pregnancy, while there is no doubt that its presence in the uterus indicates that in that organ it favours, if not the occurrence, at least the maintenance of a pregnancy till full term. In the tube, the ovum lies below the mucous membrane, and it is enclosed in muscular tissue, showing that its seat is not upon or even in the mucous membrane. In this respect it differs entirely from uterine pregnancy, in which the muscular wall beneath the mucosa is not invaded by the ovum, and its strength thereby retained unimpaired. The decidua, in fact, protects the muscular wall and supplies room for the development of the vascular system

of the placenta without any encroachment on the muscular wall.

Probably, as has been already said, it is not so much in changes in the tubal wall as in changes in the ovum itself that we are to look for the cause of the embedding of the ovum in the tube. The surface of the earliest human ovum yet observed is covered with a layer of cells, some of which, at least, form that peculiar substance called syncytium. This substance seems to have a destructive action upon the tissues with which it comes in contact, and when it forms upon the ovum we may suppose that this at once burrows into the maternal tissues wherever it may be situated, whether in the tube or in the uterus. How long after impregnation it is before the syncytium appears we cannot tell, but it is at anyrate a very early development. In Peters' case, the woman had menstruated on 1st September, and at the end of September felt indications of pregnancy, while the menses did not appear. She committed suicide on 1st October, and a few hours after death a section was made. At the section some active spermatozoa were found in the vaginal secretion, and a small abrasion, nearly healed, was present on the vulva, indicating, perhaps, that the fruitful coitus had taken place about a week before and the impregnation naturally rather later—possibly only three or four days before death. In this ovum, which was already embedded in the uterine mucosa, there were no chorionic villi, but from the trophoblast which covered the ovum small processes passed out towards the maternal tissues, which might be the beginning of villi, and of these processes some at least were becoming syncytial.

We may be fortunate enough some day to meet with an ovum in process of settlement in the tube, but till then we may accept it as probable that if the ovum reaches the stage of developing syncytium on its surface before leaving the tube, a tubal pregnancy will necessarily result whatever the condition of the tube itself may be.

It is a frequent experience that a diseased uterine mucous membrane gives attachment to an ovum, and only when the ovum reaches a certain stage the diseased mucous membrane becomes unable to continue its nourishment, and an abortion takes place. So we may say that a diseased tube, when the disease is not advanced enough to prevent pregnancy altogether, may give harbour to an ovum for a short period until the food it can supply to the growing ovum proves insufficient for its continued growth. But even a healthy tube is unfavourably placed for the maintenance of a pregnancy,

and in the immense majority of cases a tubal pregnancy is interrupted at an early stage.

What is the cause of this interruption?

The explanation which first suggested itself was, naturally, that the tube was unable to grow in proportion to the rapid growth of the ovum, and accordingly the distension of the ovum caused thinning out and ultimately rupture of the tubal wall. It is to be noted, however, that in many cases of ruptured tubal pregnancy the rupture has taken place when the patient was at rest, and not during such exertion as would tend to increase intra-abdominal pressure and possibly burst a thin-walled cyst in the pelvis. It is also to be noted that the tube is often found much more distended in pyosalpinx and hydrosalpinx without rupture taking place, and in cases also of tubal abortion in which rupture does not occur. We must look for some other cause of rupture than mere thinning out and distension, and this cause is probably to be found in the corrosive action of the syncytium upon the tubal tissues. The so-called rupture, in fact, is not properly a rupture, but a perforation.

In a considerable proportion of tubal pregnancies this perforation does not occur, but an abortion takes place—that is, the ovum is found either extruded or in process of extrusion from the tube through the fimbriated end, which is greatly stretched by the passing ovum.

In these cases of abortion, the condition found in the tube is something like this:—The pregnancy is sufficiently advanced for chorionic villi to have formed a placenta. The syncytium from the villi has opened into the maternal vessels, and as the walls of these vessels are insufficiently supported or replaced by the tubal wall, bleeding has taken place into the membranes of the ovum. The essential thing here is the perforation of the blood-vessels and the escape of blood into an enclosed space. This loss of blood and the pressure resulting from its accumulation in the tube may bring about the death of the ovum, and the process may end with the presence of what is practically a foreign body in the tube—a tubal mole.

When rupture, or rather perforation of the tube occurs instead of abortion, we probably have the erosion of a vessel near the peritoneal surface of the tube, and the blood escaping into the peritoneal cavity does not disturb the membranes of the ovum, as in the case of abortion, and, at the same time, does not exercise pressure on the ovum, so that there is less necessity for the death of the ovum to take place. Hence in

such cases we might expect recurrent or continuous hæmorrhage much more frequently than in cases of abortion, and this is what we find in actual fact. Even in cases of abortion, however, recurrent hæmorrhages are not infrequent, and these are probably due to the continued life and activity of syncytium present in the site of the ovum. The very free hæmorrhages which often follow even uterine abortion probably result from the same cause rather than from the mere congestion of the mucous membrane, as is usually supposed.

The period of pregnancy at which a perforation of the tube occurs varies very considerably, and it is sometimes so early that it could not be explained as the result of distension of the tube. The time of perforation probably depends upon the thickness of the part of the tube that intervenes between the site of the pregnancy and the surface of the tube, and when this is only a thin portion of the wall, the perforation will occur at a very early stage.

But, however early the stage, the amount of hæmorrhage may be enormous. Indeed, it would almost seem as if the amount of bleeding was even greater in the early than in the more advanced extra-uterine pregnancies, and a hæmorrhage in the third week may be of more deadly effect than one occurring in the third month. This cannot therefore depend on the size of the vessels opened or on the extent of the opening in the tubal wall, or on the extent of the separation of the ovum from its site. Most probably it is due to the peculiar corrosive action of the syncytium, and to its quality of preventing the coagulation of the blood, which would be the natural means of hæmostasis in these cases. The study of deciduoma malignum has illustrated these fatal properties of the syncytium, and probably supplies a clue to the explanation of this, the most alarming and fatal result of extra-uterine pregnancy.

The reference to rupture of the pregnant tube would naturally lead to a discussion of the symptoms of extra-uterine pregnancy, but as I have already occupied too much time and trespassed on your patience, I shall not discuss the symptomatology, except in so far as it comes into the discussion of the treatment, to which I now pass.

In considering the treatment of any disease, it is customary to raise first the question of prevention. Is it possible to prevent extra-uterine pregnancy?

In the individual case, we may at once answer in the negative. This disease occurs in women who have had no illness, who are in perfect health, as frequently as in those

who have suffered from some former ailment. It comes without our knowing why. But it is perhaps the case that it occurs more frequently in our cities than in country districts, and in the lower classes more frequently than in those who lead a less harassing existence. It is supposed also by some, as I have already stated, that it is in reality a reversion to an earlier type, such as is apt to occur in the degenerate members of a species. If these are really facts, they point to the prevention of extra-uterine pregnancy as lying like that of so many other diseases in the maintenance and promotion of a sound national health. In our practice, however, this does not lead us far, and for our present needs we may consider the prevention of the disease as beyond our province.

As has been often remarked, the life-history of an extra-uterine pregnancy divides itself naturally into two periods—one before and one after rupture. In the former of these periods, there is usually nothing to suggest to the patient the presence of any abnormal condition; but if by some fortunate accident an examination of the pelvis is made, it should usually be possible to recognise the condition, and the following are the data on which the diagnosis would be based:—

1. A possibility of pregnancy, rising to a probability, if any of the usual early symptoms of pregnancy are present.

2. A slight enlargement and softening of the uterus, especially if this enlargement is less in amount than the period of supposed pregnancy would lead us to expect.

3. The presence of a pulsating tumour in one or other side of the pelvis occupying the situation of the tube, especially if the tube can be felt to pass directly into the tumour from the angle of the uterus.

I consider that any case in which these three conditions are present should be regarded as a case of extra-uterine pregnancy. It is admittedly only a probable diagnosis. Seldom, indeed, does diagnosis in any region reach absolute certainty, but the probability here is very great. It would still be great even if we had only the first and third of these conditions present, *i.e.*, the probability of pregnancy and the presence of a lateral pulsating tumour.

The probability would be less if we had no suggestion of pregnancy and no enlargement of the uterus, but simply a pulsating tumour in the region of the tube. I should then be inclined to lay special stress upon the character of the tumour—its softness, as contrasted with pyosalpinx; its more distinctly lateral position, the pyosalpinx tending to pass more behind the uterus; its lesser tenderness; its mobility,

as contrasted with the more fixed pyosalpinx; and its less elongated shape. These physical characters, with an absence of a history of previous pelvic peritonitis and the absence also of febrile reaction, would raise the probability to a very high degree, and would justify our acting as if the existence of an extra-uterine pregnancy were undoubted.

Supposing, then, that we have to deal with a case of extra-uterine pregnancy before rupture, what ought to be our action? Undoubtedly, we should remove the pregnant tube. A patient with this condition is in a position of the greatest danger. She has fallen down a precipice upon an explosive mine, the fuse of which is ignited, and in a short time the explosion must inevitably occur. And for her the explosion means certain, and it may be fatal injury. The chances of its being fatal are, perhaps, about 50 per cent. Her only way of escape is to climb the precipice and avoid the mine, but this, too, is dangerous. The danger, however, is enormously less, amounting, with our present methods of abdominal section, to perhaps 1 per cent, or say one-fiftieth of the risk of waiting for rupture. There can be no hesitation as to the alternative we ought to choose. The pregnant tube should be at once removed.

Suppose, however, the rupture has already taken place, we may be called to see the patient either immediately after or long after, and the question as to treatment becomes more difficult to answer.

In speaking of the catastrophe, I have used the word rupture; but we have to remember that the termination of a tubal pregnancy is frequently an abortion, and that an abortion is distinctly less fatal than a perforation. At the time of the catastrophe, however, and for some time thereafter, it may not be possible to say which has occurred, and the chance of a fatal termination being so great we ought to act in all early cases as if we were sure that rupture had occurred. There should be no delay in opening the abdomen and removing the pregnant tube. I am doubtful of the propriety of removing the pregnant sac alone and leaving the tube. Not only is the operation prolonged thereby, but I think that however careful the operator may be there is a distinct possibility that some of the syncytium might be left and give rise to a recurrence of the hæmorrhage. There is also the additional danger of a second tubal pregnancy occurring in the maimed tube. For these reasons, I think it right to remove the tube as well as the pregnant sac.

But we may see the patient a considerable time—two or three or more weeks—after the rupture has taken place. Cases of this kind may be divided into two classes—one in which there has been uninterrupted though perhaps slow recovery—a gradual and steady absorption of the blood effused into the abdomen, a steady recovery of strength, and an absence of pain and uterine discharge; the other, in which there is a history of recurrent internal hæmorrhage, of persistent or occasional uterine hæmorrhage, of pelvic pain, of variable temperature, in short, of a disturbed, interrupted, or faulty convalescence. These two classes must be treated differently. The first class requires only careful nursing to promote their complete recovery. In some of them at least there is a complete absorption of the effused blood, and a recovery of normal pelvic functions, even if we might find on examination some adhesion and matting of the viscera in the lower abdomen as the result of the hæmatocele.

The second class demands surgical treatment as definitely as those cases which are seen immediately after rupture. If there is a tendency to recurrent internal hæmorrhage, the danger of death from acute anæmia may arise at any moment. If there is a delay in the absorption, the risk of infection of the hæmatocele is ever increasing. If there is uterine hæmorrhage, we may take it as not only injurious in itself, but as indicating a condition in the neighbourhood of the uterus to which we may appropriately give the vague name of "irritation," seeing that it is due to the presence of what is actually a foreign body in the pelvis. When absorption is going on smoothly, the processes taking place in the hæmatocele have, so to speak, come into harmony with the vital processes going on in its neighbourhood; but in the cases that are going wrong this harmony is broken, and the various processes react injuriously upon one another. Disturbed temperature, uterine hæmorrhage, pelvic pain, deterioration of health, all give evidence of this discord, and indicate that its source should be removed lest worse results follow. Wherever the convalescence is not progressing smoothly, it is in the best interests of the patient to clear away from the pelvis the pregnant tube and the hæmatocele sac. And in doing so, I prefer to proceed by way of the abdomen rather than by the vagina.

I need hardly refer to those still later cases in which the hæmatocele sac has become infected, or in which a macerating or decomposing fœtus is present in a sac full of offensive fluid.

In all such cases, of course, the septic or decomposing materials must be removed, though in these cases we cannot speak of complete removal of the pregnant sac, and must be content simply with drainage after emptying.

The address was followed by a lantern demonstration, prepared by Dr. A. Louise M'Ilroy, illustrated by the following:—

I. *Structure of the Fallopian tube—*
1. Uterine end of tube.
2. Near uterine end of tube.
3. Near abdominal end of tube, showing slight erosion from salpingitis.
4. Thickened wall of tube in tubal pregnancy.
5. Thickened wall of tube in tubal pyosalpinx; epithelium eroded, round-celled infiltration of mucous membrane.
6. Tube in hæmatosalpinx, blood-clot in lumen, epithelium partly eroded. The tube on the other side was pregnant.

II. *Decidual formations—*
7. Uterine decidua in normal pregnancy, showing cells and glands.
8. Decidual cast of uterus in tubal pregnancy, showing external and internal surfaces.
9. Compact layer of decidua from cast 8.
10. Decidual cells in uterus in tubal pregnancy.
11. Decidua in tube, mucous membrane compressed and flattened out. (The decidua extended along the tube.)

III. *Villi of the chorion—*
12. Degenerated chorionic villi from uterus.
13. Ovum from uterine abortion, showing membranes and decidua; embryo lost.
14. Villi in endometrium, gained by curettage after abortion.
15. Folds of tube, slightly degenerated, to contrast with chorionic villi.
16. Villi and decidual cells from tubal mole, degenerated.

IV. *Syncytium—*
17. Syncytium and Langhans' layer from villus in tube; high power.
18. Syncytial bud; commencing villus in tube (high power).
19. Syncytial cells perforating wall of blood-vessel.

V. *Photographs of specimens, showing the various lesions in the tube, and showing the situation of embryo or fœtus.*

20. Rupture in between layers of broad ligament, showing embryo.
21. Tube, with external surface unbroken; had ruptured in between layers of broad ligament, and a small embryo was found in it.
22. Mole, filling tube, rupture between layers of broad ligament.
23. Tubal abortion, mole protruding from fimbriated extremity of tube, which encircles it like a collar. Ovary below.
24. Tubal abortion; embryo in abdominal cavity, cord passing through the abdominal ostium into the tube to be attached to the placenta, which lies in the tube.
25. Site of tubal rupture, tubal folds degenerated, villi in blood-clot.
26. Site of tubal rupture, mole with villi, strands of muscle fibre thinned out.
27. Erosion of tube wall by chorionic villi.
28. Rupture; mole showing embryo in interior.
29. Rupture; tubal pregnancy, with twins in uterus.
30. Rupture, showing placenta and fœtus.
31. Rupture, with fœtus in peritoneal cavity, parts shown in their relation to the uterus, which was obtained *post-mortem*.

Meeting II.—23rd November, 1904.

The President, Dr. J. K. Kelly, *in the Chair*.

New Fellows.—The following were admitted as ordinary Fellows:—Archd. Donald, M.D., M.R.C.S.Eng., L.R.C.P.Lond.; Duncan Johnston Fletcher, M.B., Ch.B.; Jessie Seath Macewen, M.B., Ch.B.; John M'Gilchrist, M.B.; Anna Pollock Martin, M.B., Ch.B.; William Ross, M.B., C.M.; David Smith, M.B., C.M.; James Charles Anderson Smith, M.B., C.M.; Robert M'Leod Watson, L.R.C.P.S.E.; William Watson, M.D.

I.—SPECIMENS.

A. By Dr. John Edgar.

Hæmatocele and sac removed from the left hypochondrium.—Five weeks previous to admission to hospital, the patient was delivered of an eight months' child. She complained of great pain during labour. An incision through the left linea semilunaris revealed a mass among the intestines adherent to the anterior abdominal wall. Fearing that the mass might contain pus, Dr. Edgar made another incision directly over it, and shelled out from amongst the intestines a hæmatocele sac filled with clot. He thought a likely explanation was that, during labour, some veins of the pampiniform plexus had ruptured, and that the uterus, receding after labour, had left the blood behind it.

B. By Dr. J. K. Kelly.

1. Myoma of the anterior uterine wall undergoing myxomatous degeneration.
2. Tumour composed of several myomatous nodules occupying various portions of the uterine wall.
3. Parovarian cyst with torsion of the pedicle.
4. Tubo-ovarian cyst filled with pus. Tubercles were found in the wall of the tube.

C. By Dr. G. Balfour Marshall.

Eight mucous polypi removed from one cervix.—Mrs. A., aged 50, sterile, four years past menopause, had complained for some years of pelvic discomfort, bearing down feeling, and leucorrhœa. There had been a very occasional trace of blood seen since the climacteric. For several months she had noticed a reddish, soft structure protruding at the ostium vaginæ, which she regarded as a "falling of the womb." On examination, the vagina seemed full of mucous polypi hanging from the cervix, eight being removed at operation. One, presenting at the ostium vaginæ, was the size of small walnut, containing small cysts, and had a long, broad pedicle attached to the anterior lip of the os uteri. Four were about bean size, and lay in the dilated cervical canal. A sixth was the size of a large filbert nut, and contained visible cysts; while the seventh and eighth polypi were about an inch and a half long by half an inch thick.

II.—EPILEPTIFORM ATTACKS COMPLICATING DOUBLE OVARIAN TUMOUR: REMOVAL OF GROWTHS FOLLOWED BY CESSATION OF ATTACKS.

By Dr. A. W. Russell.

Epileptiform seizures associated with the most diverse exciting causes are familiar to every medical man, and cessation of the attacks has been frequently reported as a result of the removal of the apparent source of the irritation or by cure of the disorder which had acted as the exciting cause. Such widely differing states as diabetes, astigmatism, the presence of worms, the onset of an infectious fever, exophthalmic goitre, lead poisoning, alcoholism, and even the use of tobacco have all been credited as etiological factors in this trouble. It is not matter of surprise, therefore, if we find sometimes that disturbance of function and disease of the genital organs are described as complicated by epileptic attacks. When there has been genital irritation, circumcision has cured the irritation and stopped the attacks, and the treatment of an injured and diseased testicle has had a similar result. Cases of epilepsy associated with amenorrhœa and vicarious menstruation, cured by the use of iodide of potassium, were reported in the *Lancet* nearly fifty years ago. Other references are found scattered through medical literature to cases in which disordered menstruation, uterine stenosis, and other conditions were found in patients who were also the subjects of epilepsy, and where such patients were cured of their epilepsy when the local diseased condition was removed. There is an interesting class of cases in which epilepsy develops at puberty. I remember one very marked case of this kind which some years ago gave her parents grave concern for some time, but, fortunately, the persistent use of bromides and the stopping of school work, with attention to dietary, open-air exercise, &c., were ultimately followed by complete cure. It has not been easy, however, to find any record of cases such as the one I wish to report to-night, where epileptiform attacks seemed for a time to occur at the menstrual periods and coincidently with the growth of the ovarian tumour now placed on the table. My investigation of the literature of the subject is by no means complete, but so far as I have gone I have been unable to find any parallel case, and there is certainly no reference whatever to such cases in any of the most recent British or American works. Apart from the immediate success of the operation and the size and

nature of the tumour, the case is worth recording on account of its complication.

M. P., aged 31, unmarried, an attendant on mental cases, first consulted me in October, 1899, on account of a typical epileptic attack. She gave a history of similar attacks beginning about three years previously, when she was about 24 years of age, and these had continued to recur about the time of the menstrual periods for a year. There were no further attacks of which she was conscious till this recent fit, which overtook her while she was on duty as an asylum attendant. She had missed one menstrual period, and menstruation had lately become more scanty. The continuous use of bromides was ordered, and great care in regulation of the digestive organs and the action of the bowels was advised. In November she again had two fits, just before the time for menstruation. The necessity for more persistent use of bromides was impressed on her, and she was advised to give up her work as an asylum attendant, which happened to be in a ward where the patients were chiefly epileptics. She reported herself to me in April, 1903, when she seemed to be in good health, and made no complaint of abdominal tumour or even of any discomfort. She had had only three or four fits in the interval. She had been for some time acting as a private mental nurse in Belfast.

The history of her case, taken in the Samaritan Hospital a month or two later, shows that she had been conscious of an abdominal swelling in October, 1902, and that she had had considerable abdominal pain during the month preceding her holiday in April, when she reported herself to me. In May, while still in Belfast, she had a very serious illness, and was seen in consultation by Dr. Campbell, who agreed with the diagnosis of peritonitis and abdominal tumour, and expressed a fear of torsion of the pedicle as a cause of the illness. Recovering somewhat from the attack, she was brought home to the neighbourhood of Glasgow, and on 1st June I was asked to see her. Under my observation for a few weeks the tumour seemed to grow rapidly, and she was taken into the Samaritan Hospital on 6th July, and I operated on 8th July with the assistance of Dr. West and the house surgeon. On making the abdominal incision, the peritoneum was found to be thickened and adherent. A considerable quantity of old blood-clot was found adhering to the visceral aspect of the peritoneum, and in one or two places this clot

had the appearance of being covered with peritoneum. A large quantity of blood-stained fluid also escaped. As the contents of the upper cystic part of the tumour refused to run through the trocar, the incision was enlarged and the tumour was removed entire, the pedicle, which showed no signs of torsion, being clamped, cut through, and then stitched across after securing the vessels. The tumour proved to be a growth of the left ovary, though lying chiefly on the right side. The right ovary, being enlarged about three times normal size and covered with warty growths, was also removed. After washing out the abdominal cavity with normal saline solution, the abdominal wound was closed with buried catgut sutures of the peritoneum and fascia and supporting sutures of silkworm gut. The patient made a good recovery, was allowed to get up on 28th July, and discharged on 2nd August. The patient's waist measurement at the time of operation was 34½ inches. The tumour weighed almost 10¾ lb.; and measured in length 12¼ inches, and in circumference at its long axis, 26 inches, and at its short axis, 19¾ inches.

This patient soon after her discharge from the Samaritan Hospital became again a private attendant for mental cases, and has been engaged without interruption up to the present date. I made enquiries a week ago, and heard from her in reply to the effect that she has never had the slightest semblance of an attack since her operation, and that her only complaint is that she is getting too fat.

A study of the case convinces me that there has been a distinct causal relation between the commencement of the pathological changes in the ovaries and the onset of the epileptiform attacks. This was not a case where epilepsy was a characteristic of the patient's life from adolescence, but where the first attack occurred about the age of 24 or 25. I am not forgetting that any form of trauma in an epileptic is often followed by a lessening of the frequency, or even by a temporary cessation of the attacks; but there can only be one opinion as to the desirability of curing the local disorder, whether it is menstrual, uterine, or ovarian, by appropriate treatment, in cases where there is also epilepsy, in the hope that the latter may also at the same time be relieved.

III.—NOTES ON A CASE OF UTERUS DIDELPHYS WITH SEPTATE VAGINA.

By Dr. Donald Duff.

Malformations of the female generative organs, especially the major forms, are comparatively rare. Accurate statistics of the occurrence of these conditions are almost impossible to obtain. Some of them, *e.g.*, hermaphoditism, hypospadias, and abnormalities of the external organs are easily enough detected and noted at birth. Cases of atresia in its various forms giving rise to hæmatocolpos or hæmatometra may be recognised about puberty, on account of their obvious symptomatology, and these cases are fairly well recorded; but others, such as cases of double vagina, double uterus, and cases where only a partial fusion of the ducts of Müller has taken place, may remain unrecognised throughout life, as *per se* they usually give rise to no symptoms, and unless they happen to be seen *post-mortem* they are never known. One can only give a relative proportion of cases of maldevelopment met with in the course of ordinary gynæcological examinations, for many of them are only noticed casually while the patient is being examined for some other condition, at the lying-in period, or during the performance of abdominal section.

The case I bring before you to-night was the only one seen in Dr. Balfour Marshall's clinique at the Glasgow Royal Infirmary in the course of between 6,000 and 7,000 examinations. There is no specimen of septate vagina and uterus in the Royal Infirmary Pathological Museum.

The history of the case is as follows:—

On 23rd September, 1903, a patient, unmarried, attended at the Out-door Gynæcological Department of the Glasgow Royal Infirmary, complaining of severe scalding pain about the vulva, worse when passing urine. There was increased frequency of micturition, and a profuse yellowish discharge was present. The symptoms had commenced rather suddenly four days previously, and were getting much worse. Menstruation was of the $\frac{2}{3}^{8}$ type, and was not accompanied by pain. Examination showed the presence of a urethritis and vulvo-vaginitis which, from their appearance and history, were diagnosed as gonorrhœal. No cultures were made from the pus, nor was it considered necessary to examine the discharge for gonococci. The vaginal discharge was very profuse, and this continued as a marked feature of the case. The external genitals, urethra, and vagina were thoroughly swabbed with a 5 per cent solution

of protargol, and this treatment was repeated thrice weekly for a considerable time without much effect on the discharge. Iodoform pessaries were then tried in addition to the swabbing, and the urethritis and vaginitis improved slightly, the scalding pain disappeared; but there was still, at the end of three months' treatment, a large quantity of pus about the vulva.

On 7th January, 1904, while the parts were being treated as usual, special attention was paid to a slight thickening about the hymen on the left side. This thickening had been noticed before, but had been considered simple œdema. On putting the apparently swollen parts on the stretch a small dimple was seen to the left of the vaginal orifice, and on putting the nozzle of the syringe—about the size of a No. 6 catheter—into the dimple, and using a little pressure, it slipped into a cavity containing pus, and about the depth of the patent vagina to the right. This proved to be the opening of another vagina, and being filled with pus was the source of the profuse discharge. This cavity was cleansed with 5 per cent solution protargol, and an iodoform bougie was introduced. A week later the parts had improved considerably, and I enlarged the opening by an antero-posterior incision so as to admit the forefinger. The treatment for the gonorrhœa was continued.

On 21st January, palpation showed the presence of two distinct vaginæ of equal length—two cervices, the left being smaller and slightly posterior to the right, and a distinct inter-vaginal septum, complete from hymen to between the cervices. It was not possible to palpate the fundus of either uterus, and as there was still some discharge the sound was not passed. Patient, who in the meantime had been married, stated that she had not menstruated for two months.

The patient was not seen till 11th February, and she stated then that two weeks previously she had had sudden pains in the lower abdomen, and what she called a flooding. Some clots were passed, and her doctor, who was called in, told her she had a two and a half months' miscarriage. This probably took place from the right uterus, as the right vagina had been all along patent, and the pains were felt more towards the right side. There was no hæmorrhagic discharge when the patient was seen on this date, but some pus was present.

On 8th March the discharge had almost disappeared, and after cleansing the vulva and vagina thoroughly a sound was passed on both sides. On the right side the sound passed $2\frac{1}{2}$ inches, and showed the uterus to lie in the hollow of the sacrum and directed to the right sacro-iliac synchondrosis. On the left side the sound passed $1\frac{3}{4}$ inch only, and showed

the left uterus to lie more downward and backward than the right and directed to the left sacro-iliac synchondrosis. The passage of two sounds at once, one into each uterus, showed that both uteri were distinctly separated down to the os externum, an appreciable space being felt between the sounds in each cervical canal. The vaginal septum seems to be proving a source of annoyance, and its removal was proposed; but, as the patient has now contracted syphilis, this operation has been deferred.

This case is interesting from the point of view of development, and perhaps I may remind you of the origin of the internal generative organs in the female. These organs are derived from three structures in the embryo, viz., the Wolffian bodies, the ducts of Müller, and the genital glands.

At the end of the first month the Wolffian bodies are seen as two longitudinal ridges of heaped up mesoblast on either side of the embryonic spinal column and extending from the upper dorsal regions to the pelvis, where the ridges become approximated. This Wolffian ridge shows on section three structures.

1. The Wolffian duct, situated towards the dorsal aspect of the ridge and internal to the other structures; its origin is a question of debate among embryologists. Kollman and other recent observers show, however, that it arises as a longitudinal invagination of somatopleuric epiblast.

2. The Wolffian tubules, arising from the intermediate cell mass.

3. The Müllerian ducts, situated most externally and ventrally on the ridge, and arising as an invagination of the mesothelium of the cœlum or body cavity, the upper end of this invagination retaining its connection with the body cavity as the fimbriated end of the Fallopian tube.

To the inner side of this Wolffian body in the lower dorsal region another heaped up ridge of cells is seen, the genital ridge, from which arises the genital gland or ovary. The Wolffian ducts, as I have stated, in the upper part of the Wolffian ridge, lie towards the mesial side of the Müllerian ducts, but further downwards, *i.e.*, towards the pelvis, the Müllerian ducts become mesial and ventral to the Wolffian ducts. The Müllerian ducts in the female coalesce, and form the tubes, uterus, and vagina.

During the third month two distinct stages in the course of the Müllerian ducts can be seen.

1. A lumbar stage, where the Müllerian duct lies to the

inner side of the Wolffian ridge, and is suspended from the posterior abdominal wall by the Wolffian mesentery. This part becomes the tube, and the mesentery the mesosalpinx.

2. A pelvic stage. Here the posterior ends of the Wolffian ridges fuse, and form what is called the genital cord, consisting of the two Müllerian and the two Wolffian ducts.

In the genital cord the fusion of the Müllerian ducts takes place, and they then pass backward between the Wolffian ducts. This point is of importance, as it is here that the renal bud arises from the posterior aspect of the Wolffian duct and forms the ureter and permanent kidney. This passing backward of the fused Müllerian ducts explains the normal relationship of ureter to uterus and vagina.

The Müllerian duct is a later development than the Wolffian, and if its origin were from any cause delayed, so that before the fusion took place in the genital cord the ureters had already been formed and become implanted into the allantoic vesicle in front, fusion of the Müllerian ducts would be interfered with, and a persistent double utero-vaginal tract result, the ureters entering the bladder between the horns of a double uterus. It is interesting to note that in some of the marsupials this condition actually occurs, *e.g.*, in the didelphians the ureters, instead of surrounding the genital cord, become engaged in Müller's ducts and prevent their union. It is known that in the human species the ureters sometimes enter the bladder abnormally, even on the anterior surface, and it would clear up the point if one could find the remains of the Wolffian ducts as Gärtner's canals in sections of the intravaginal septum of a case of double uterus and vagina, or if on catheterising the ureters, the ureteral catheter was found to pass to the inner side of uterine sounds introduced into the two uteri.

In nearly all vertebrates, except monkeys and man, traces of the original division of the genital canal into two are seen. In fishes, amphibians, reptiles, and lower mammals, a double vagina and uterus is met with. Higher up the scale, rodents, *e.g.*, rabbit, hare, squirrel, have a single vagina with double uterus. In the carnivora a single vagina with uterus bicornis unicollis occurs. In accordance with Von Baer's law we would expect to find all these varieties in the developmental process of the human fœtus, and this is what actually happens. At the second month we have a double utero-vaginal tract. At the third month a disappearance of the septum between the portions of Müllerian ducts forming the cervix is seen. At the fourth month the human genital organs are the same as those met with in the carnivora, *i.e.*, single vagina with

uterus bicornis unicollis—the last part of the septum to disappear being that near the fundus.

Development may be arrested at any stage in the fusion of the ducts of Müller, and I have mentioned a probable cause of want of union of the whole tracts. I notice in last week's *Lancet*[1] a report of a case read by Dr. Rankin Lyle, of Newcastle, before the Edinburgh Obstetrical Society, where double uterus and vagina were found at a Cæsarean section, and a distinct band of peritoneum passed from the bladder to the rectum between the two uteri. Dr. Lyle makes no mention of the ureters, but it is possible they entered the bladder beneath this peritoneal reflection.

I may mention what appears to me to be at least a hypothetical cause of these cases of uterus bicornis where the vagina and cervix is single.

Part of the Wolffian ridge stretches forward and becomes attached at the groin, this part being called the inguinal fold. Into this fold muscle cells grow backward from the internal oblique and transversalis, these muscle fibres forming the muscular element in the round ligament and its homologue in the male, the gubernaculum testis. These inguinal folds are attached to the Müllerian ducts at the point where the future division between tubes and uterus takes place, and one can easily conceive that any shortening of these folds will keep the uterine horns apart and prevent the complete formation of a fundus.

I have mentioned these as probable theories, and I trust that the discussion and the expressed opinions of the more experienced gynæcologists present may help to throw some light on the subject. I may mention that I am indebted to Dr. Balfour Marshall for permission to bring this case before you, and also for his courtesy in allowing me to treat the case in his clinique.

Dr. Jardine said that he had seen several cases of double uteri in connection with pregnancy. One case he had reported to the Society a short time ago. In that case, the uterus and vagina had been double. He had discovered that the uterus was double and one horn pregnant at the third month, but he had only noticed one vagina. When the patient was in labour he had discovered the second vagina, which had never been penetrated, and the curious thing was that it was the vagina with which the pregnant horn was connected. It might have

[1] *Lancet*, 19th November, 1904, p. 1422.

been a case of transmigration of the spermatozoa, but he thought it more probable that they had made their way up from the vulva. After delivery, he had removed the vaginal septum and also the decidua from the non-pregnant horn. He had examined the patient some months later, and had passed two sounds, the nodules of which crossed in the vagina. He had seen at least two other cases with partial separation of the horns. One of the latter patients had a badly contracted pelvis, and if she should again become pregnant he hoped to do Cæsarean section on her. He believed that all the so-called cases of superfœtation were really cases of double uteri, where the two horns had been impregnated at different times.

Dr. A. W. Russell said that he had seen several cases of double vagina and double uterus, and he had had two cases under his own care and had operated on both of them. The first was a young married lady who, in complaining of dyspareunia, was found to have a thick and complete vaginal septum. The uterus itself was found to be also completely divided by a septum. The vaginal septum was removed, and the patient soon became pregnant. About the middle of the pregnancy, after some weeks of considerable discomfort, the patient felt as if something gave way, and there was slight hæmorrhage. The after-history seemed to justify the presumption that this indicated the rupture of the thinned-out septum, as ever afterwards the patient felt comfortable and had a normal confinement at full time. The placenta and membranes were carefully inspected, but threw no further light on the case. The other case was a young unmarried lady, of neurotic temperament, who had dysmenorrhœa. On hearing of this abnormality, also a complete continuous median septum of uterus and vagina, she decided to have the septum removed, and in this case the cervix was also dilated and the septum was slit up, as she had the prospect of marriage. The only thing to be further noted in this case is that ever afterwards the patient persisted in saying that there was prolapse of the uterus, and when at last examined in the erect posture the uterus was felt to lie low in the pelvis. This suggests the possibility of abnormal weakness of the lateral supporting structures, but too much stress should not be laid on this, as the patient was markedly neurotic.

Dr. Kelly said that he could not remember having noted in the course of reading that the ureters had ever been observed passing between horns of a bicornuate uterus.

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IV.—VULCANITE RING PESSARY WORN FOR FIFTEEN YEARS AND CAUSING SYMPTOMS SIMULATING MALIGNANCY IN A WOMAN, AGED 60.

By Dr. G. Balfour Marshall.

Mrs. T., who stated that her age was over 60 (she looked several years older), and that menstruation had ceased twenty-six years ago, was admitted to the Glasgow Royal Infirmary last October complaining of pelvic pain, dysuria, and a blood-stained vaginal discharge of some months' duration. Fifteen years ago, after lifting a heavy weight, her "womb came down," as she expressed it, and the resulting symptoms sent her to a medical man, who inserted a pessary which afforded relief. The patient stated that this pessary had never been removed, and that she still wore it. For the next five years she felt quite comfortable, but after this time she began to experience slight pain in the pelvis when she walked much or sat for long in one position, and about the same time a yellowish vaginal discharge showed itself. The painful symptoms and discharge continued, but although at a later date the pain became much more severe, she did not care to seek medical advice. During the last few months the pain had become very severe, so much so that the patient stated she did not know how she had stood it so long. The discharge became blood-stained, but latterly it had consisted mostly of pure blood. For some time there had been increased frequency of micturition, with difficulty in starting the flow, and more or less pain during the act.

From the history of the case, I suspected carcinoma of the cervix uteri, which had already spread so far as to involve the bladder wall.

Examination.—The rounded lower end of what I took to be a vulcanite Albert Smith pessary presented at the ostium vaginæ, but, on attempting to pass the finger into the vagina, the instrument was found to be completely buried in its whole extent. The finger, indeed, could only be passed for half an inch or so into the vagina, when it came in contact with what felt like granulation tissue, as on forcing the finger onwards the vaginal walls could be separated in the middle line. This, however, gave rise to hæmorrhage, so an extensive separation was not attempted. Careful examination revealed no indurated tissue, no ulcerated surface, nor fœtid discharge characteristic of malignancy, so that it was evident that the pessary had caused ulceration and become completely embedded in the

vaginal walls. It was not, however, till operation that it could be determined what had actually occurred.

The pessary was an ordinary vulcanite ring, 3 inches in diameter. As the natural shrinkage and atrophy of the vagina following on the climacteric took place, the pessary, now proving too large, gradually ulcerated its way into the lateral vaginal walls and posterior fornix, finally becoming completely buried by the mucosa healing over it. At a later date, probably indicated by the onset of the blood-stained discharge, ulceration had occurred on both anterior and posterior vaginal walls, giving rise to granulation tissue which, uniting, completely occluded the vagina nearly down to the ostium vaginæ. This tissue was easily separated by the finger till the vaginal vault was reached, hæmorrhage being considerable while this was being done. The pessary itself, however, could only be removed after cutting through a tough band of tissue, averaging quarter of an inch in depth. The ring, when removed, was as fresh as if just from the maker, and none the worse of a fifteen years' sojourn in the vagina.

The opinion I formed was that the pessary had probably been buried for years beneath the mucosa, and that the later severer symptoms, especially those of hæmorrhage, were due to ulceration of the anterior and posterior vaginal walls.

There are numerous cases quoted in the literature of the damage that neglected or badly fitting pessaries can cause, even to the extent of ulcerating into neighbouring viscera, but I have thought this case worth recording owing to the age of the patient and the presence of symptoms which justified the very natural suspicion of advanced malignant disease.

Meeting III.—21st December, 1904.

The President, Dr. J. K. Kelly, *in the Chair.*

I.—SPECIMENS.

A. By Dr. J. M. Munro Kerr.

Dr. Munro Kerr showed a uterus which had been removed the previous day from a patient eight months pregnant on account of carcinoma of the cervix. The patient, a ix-para,

was admitted to the Maternity Hospital with the history of having been in labour for two days. The os was half dilated, but the head of the child was prevented from passing through the pelvis by reason of the tumour in the anterior lip of the cervix. The child was considered to be dead. Cæsarean section was performed, and a dead child extracted. Thereafter the broad ligaments were ligatured and cut. The uterus, however, was removed *per vaginam* after its connections with the bladder had been separated. This was done with the object of preventing septic infection of the peritoneum. There was no difficulty in removing the uterus.

B. By Dr. J. K. Kelly.

1. Uterus, with large cystic myoma, filled with sanious fluid, growing from fundus.
2. Dermoid cyst of ovary in the base of which was found a lipoma and some bony tissue.
3. Ovarian cyst.

C. By Dr. John Edgar.

Mulberry calculus removed from the left ureter by abdominal section.—It measured three-fourths of an inch in length, and five-eighths of an inch in each of the other two directions. It was situated at the side of the pelvis, slightly below the normal site of the ovary. After removing it, the opening in the ureter was closed by interrupted catgut sutures. In case leakage of urine should occur, an opening was made through the posterior fornix into the pouch of Douglas, and a strip of iodoform gauze was introduced. Leakage did occur on the third day, but it ceased spontaneously ten days later, and patient made an otherwise uninterrupted recovery.

D. By Dr. Robert Jardine.

Dr. Jardine exhibited two drawings illustrating traumatic keratitis of the newborn. In one, the bands of opacity were in the vertical axis of the eye, and in the other in the transverse. The first was the most usual.

II.—DISCUSSION ON THE TREATMENT OF UTERINE PROLAPSE.

Dr. W. L. Reid, in introducing the discussion, said—I was induced to suggest this discussion on the treatment of uterine prolapse and accede to the request of the Council to open the

discussion to-night by the fact that I have often been in doubt as to the best manner of treating a particular case, and I have tried a number of the plans and modifications of plans suggested by different practitioners. Now, I have a fairly clear idea of what is most suitable in the way of treatment, and am naturally anxious to compare the experience of my brethren with my own.

I should like to narrow the limits of the discussion, so as to make it as profitable as possible.

First, let me say that we are to speak of chronic cases of prolapse only; second, that we must differentiate between slight cases and severe ones in speaking of treatment.

I do not refer to prophylaxis, although I may say in passing that its importance cannot be over-estimated. The perineum should be carefully sutured when torn, and causes, such as sepsis or too early rising after labour, which may lead to subinvolution and displacements, should be most carefully attended to.

Probably we are all agreed that in moderate cases of prolapse, where the perineum has been little destroyed or dilated, a properly-fitting pessary, with attention to the bowels and a fair amount of rest, are all that is necessary. Setting these cases aside, difficult questions arise as to what are the limits of the various mechanical appliances and operations in an ascending scale of difficulty, danger, and efficiency. For cases other than minor ones, I would dismiss at once such means as long-continued rest, hot or astringent douches, general tonics, massage, and electricity, as being little likely to do more than passing good. There are cases in which the perineum is dilated and where the older forms of pessary, such as the Hodge, will not stay in position, but in which an Albert Smith with a strong sacral curve will serve very well by keeping the uterus in a state of anteversion, and so throwing its long axis at right angles to the pelvic cavity. Again, so long as the upper reach of the vagina is wider than the vulvar orifice, a strong watch-spring pessary will retain the parts in position. But the rubber covering of the watch-spring pessary is apt to give rise to great and offensive leucorrhœa in spite of the use of an aseptic vaginal douche. Where the perineum is much dilated, the most efficient pessary I know is Herman's modification of a Hodge, in which the lower bar of the latter instrument is turned sharply forwards so as to rest against the inner surface of the pubic arch. Many women who object to operation are kept in comparative comfort by its means.

I deliberately keep out of consideration all pessaries in the shape of balls, cups, and stems, and even jointed ones, such as Zwanke's, as being either inefficient or dangerous, or both. Neither do I consider the means suggested to retain the uterus by thickening the broad ligaments, such as the injection of alcohol or paraffin, because I have no personal experience of them.

We now come to distinctly surgical means, and I simply mention them and offer an opinion on their value, and it is precisely here where the discussion may be of most value. As it is generally admitted that destruction of the perineum is an important factor in the production of prolapse, it seems natural to suggest its restoral. But when the patient gets out of bed after this has been done, the uterus comes down and slowly but remorselessly redilates the restored parts. This may sometimes be slowed or even prevented by wearing a pessary which produces anteversion of the uterus. As the uterus is often subinvoluted and heavy, amputation of the cervix is practised with the view of reducing its weight and exciting absorption. But this alone will not suffice, although this added to a restoration of the perineum does in a certain percentage of cases.

Complete hysterectomy has been practised in severe cases, but with little good result, as, although the uterus cannot come down when it is not there, the surrounding organs which formerly accompanied it in its descent still persist in forming a hernial protrusion.

Various methods of fixing the fundus to the anterior abdominal wall have been practised under the names of hysteropexy, ventral and abdominal fixation, and where the uterus is not very heavy and fixation firm, this does retain the uterus, but it does not cure the cystocele, which is a frequent accompaniment of such cases. Operations for fixing the uterus from the vagina have been pretty well given up, so far as I know, owing to after-discomfort and risk in the event of pregnancy.

The Adams-Alexander operation for shortening the round ligaments is sometimes satisfactory, and I have often performed it, but it is frequently a difficult operation, and its chief *raison d'être*, that it did not require opening the peritoneal cavity, is now done away with in these days, when pretty complete safety can be secured by thorough antiseptic precautions.

Wylie's, Mann's, and Dudley's operations for intra-abdominal shortening of the round ligaments by kinking them up seem

to me to be more difficult and no more efficient than a thorough abdominal fixation.

Where the uterus is very heavy, abdominal fixation may be wisely modified, according to Noble's plan, by a supravaginal hysterectomy with fixation of the stump to the abdominal incision.

Shortening the utero-sacral ligaments from within the abdomen may help to make a ventrofixation effective, but could not, I think, be trusted alone. Of the method suggested by Freund, for the case of an aged woman with bad prolapse in which the parts are supported by the placing of silver wire all round the vagina at successive levels, I know nothing. Complete closure of the vagina is never safe and never necessary.

With regard to severe cases of prolapse complicated with cystocele and rectocele, I agree in the main with Howard Kelly's conclusion than an anterior and posterior colporrhaphy, with amputation of the cervix uteri, is the most satisfactory and usually quite successful treatment, and that where this threatens to fail the addition of abdominal fixation is all that is required. But I differ a good deal from him in the details of the operation. First of all, he amputates the cervix before removing the mucous membrane from the anterior vaginal wall. This makes the latter more difficult, because the cervix is not present to be used for putting the base of the bladder on the stretch. He removes a piece of mucous membrane only one to one and a half inch broad, because if more is removed "the suturing of the posterior vaginal wall in the next step will be difficult." I find that the result is not thoroughly satisfactory unless a piece from two to three inches in breadth is removed, and by the method of suture of the posterior wall, which I shall immediately describe, there is no after difficulty in its performance. Again, Dr. Kelly removes the cervix near the level of the os internum, two to two and a half inches from the os externum, and has to tie the uterine artery. I find that amputation just above the vaginal roof is sufficient, and much easier. Lastly, he removes two small lateral triangular flaps from the posterior vaginal wall, and thus has two rows of sutures. I remove one large central flap, and have only one. I practised this method twenty years ago, on the assumption that a lateral wound was less likely to allow of percolation of fluids from the vagina than a central one, but with careful vaginal douching through a soft rubber tube I found that there was no difference as regards results. Dr. Kelly states that anterior colporrhaphy is only needed in

extreme cases, but I have found that even a slight cystocele gives the patient the impression that the womb is coming down again, and, in spite of explanation, the idea keeps her miserable.

My present view of operative treatment is this:—Where pessaries have not been satisfactory, where there is little or no cystocele, where the prolapse is accompanied by retroversion, and especially where there are adhesions, I often perform a ventrofixation pure and simple, using silk ligatures, rawing the peritoneal surface of the uterus, and taking a fairly large bite of the subperitoneal tissues in the abdominal wall. Out of fifteen such cases operated on during the last three years, only one failed, the attachment to the abdominal wall giving way within three months. Where the prolapse is extreme, with cystocele and rectocele, and the uterus large and heavy, I perform at one sitting an anterior and posterior colporrhaphy, supravaginal amputation of the cervix, and a thorough restoration of the perineum. It would be tedious and probably unprofitable if I were to try to give you simply in words details of these operations; suffice it to say that I take a large oval piece out of the anterior vaginal wall and a large triangular piece out of the posterior one, the apex being only a little way below the level of the cervix. The result of these proceedings is the temporary almost complete closure of the vagina, and the formation of a large block of perineum. After the contraction incidental to healing has taken place, the vagina comes to be almost normally patent.

Where the uterus is not heavy, I omit the amputation of the cervix.

Of thirty such cases, I do not know of one which has failed, but some of them I have lost sight of immediately after convalescence.

Dr. Edgar had listened to Dr. Reid's paper with much pleasure and profit. He rarely performed ventrofixation of the uterus in cases in which pregnancy might occur later. In such cases, he always sutured the fundus uteri to the peritoneum at the abdominal incision (sero-serous union). Where there was no possibility of pregnancy occurring, he sutured the fundus to the rectus muscle and fascia (sero-fibrous union). In a considerable number of cases in the child-bearing period of life, where the prolapse was complicated with retroflexion of the uterus, he had performed a modified vaginal fixation of the uterus with gratifying results. After opening into the utero-vesical pouch through the anterior

vaginal fornix, he passed a silkworm-gut suture through the vaginal wall and peritoneum on one side, then through the body of the uterus a centimetre above the flexion, and finally through the peritoneum and vaginal wall on the other side. This suture he left in for six weeks. He combined this operation with colporrhaphy and such other operation as might be necessary. Several cases had subsequently passed through pregnancy and labour at full term without any complication. In none of them did the retroflexion recur, but in one the uterus prolapsed once more.

After colporrhaphy and perineorrhaphy he always ordered the bowels to be moved on the third morning, and, except where there was some special indication for it, he did not use the vaginal douche. It was remarkable how seldom these wounds failed to heal by first intention. Stitch abscesses were extremely uncommon—much more so than in the case of skin wounds.

Dr. Scott Macgregor said—In all my cases of prolapsus uteri I prefer to use instrumental treatment previous to operating. I find that patients, as a rule, do not readily consent to an operation, but if you begin by trying a pessary, and should this fail, one can always fall back upon an operation. For this purpose I use a round vulcanite pessary, and in several instances it has answered admirably, where at first sight an operation seemed the only hope.

In my first cases of hysteropexy, I followed the methods of Howard Kelly in attaching the uterus to the peritoneum only. This I ultimately abandoned, and for some time past have passed the sutures of attachment through peritoneum, muscle, and fascia; the results have been quite satisfactory.

Following the operation, cystocele is quite a common occurrence, and I thought that the use of paraffin might be employed in such cases. I, however, only tried it once, and it, in my opinion, did not come up to expectations. I found it too troublesome to work with; probably my lack of experience in its use had something to do with it.

Dr. Munro Kerr agreed with Dr. W. L. Reid that the slighter forms of prolapse could often be quite satisfactorily treated by pessaries, and he also thought the Albert Smith and "boat-shaped" varieties the best. He, however, was much opposed to the use of rubber instruments.

Many of the more severe cases, he thought, could be quite satisfactorily treated by a thorough repair of the perineum

3. A uterus, three months pregnant, with a myoma in its upper portion. There were also some small myomata in its lower part.

C. By Dr. G. Balfour Marshall.

1. *Double pyosalpinx with uterus removed by abdominal hysterectomy.* — J. D., aged 23, unmarried. First menses began at 18, were irregular every two to four months, and lasted one or two days. Menses were accompanied by dysmenorrhœa, coming on two or three days before the flow and lasting throughout. There was copious leucorrhœa during the intermenstrual periods. She suffered from attacks of burning pain in the back, and severe pain in the lower abdomen, frequently accompanied by diarrhœa. She also complained of dysuria and increased frequency of micturition. There were suspicions of gonorrhœa in the history. Examination showed extensive erosion of cervix, endocervicitis, endometritis, and pyosalpinx, all the organs being matted together by peritonitic adhesions. At operation, the small intestines were found all matted together over the whole pelvic brim, the adhesions being particularly dense between bowel and right annexa and fundus of bladder. The operation was tedious and difficult, the whole uterus and both annexa being removed. The patient apparently did well till the third day, flatus being passed, and the bowels moving twice slightly. During the afternoon of the third day she suddenly collapsed, and died twelve hours later.

2. *Dermoid of left ovary.*—Mrs. D., aged 30, six children; last, two years ago. The patient first noticed the tumour seven months ago, and was told she had a floating kidney. It changed its position, causing considerable pain when the patient turned from one side to another, and was so movable that it could be easily pushed all over the abdomen from pelvis to hypochondriac region. When removed, the cyst was almost quite round, measured 4½ inches in diameter, and had a long pedicle. On section it was found to contain hair, besides the usual fluid.

3. *Zwanck's butterfly pessary worn for three years by a patient, aged 44.*—The pessary had ulcerated deeply into the lateral fornices of the vagina, with symptoms of constant pain, until the outer half of each wing was completely embedded and fixed by tissue which had grown through the loops. A thick band of cicatricial tissue on each side required to be cut through before the instrument could be removed.

D. By Dr. Nigel Stark.

Melanotic sarcoma of uterus.—The patient, æt. 26, was admitted to hospital on 17th December, 1904, complaining of excessively severe abdominal pain, following a confinement five weeks before. The placenta had been removed manually by a midwife. The patient felt well until the fourteenth day, when she went out. That night she was seized with severe pain in the left iliac region. On admission, the patient was suffering from bronchitis, and had a temperature of 103° F. The uterus was curetted. Dr. Carstairs Douglas examined the sputum and the curetting. The sputum showed numerous alveolar cells in which pigment was present in small granules which had not the characteristic carbonaceous appearance. Various micro-organisms were present, but no tubercle bacilli. Sections of the curetting showed very unusual appearances. Bundles of ordinary muscular uterine tissue were densely infiltrated with masses of round cells, arranged in slightly columnar manner. At other parts quantities of granular black pigment were scattered over indefinite areas, and surrounded by dense masses of round cells. Microscopically, the appearances were typically those of melanotic sarcoma infiltrating the uterine wall. A few normal glands were evident at one part.

II.—SOME CASES OF UTERINE MYOMA, WITH REMARKS ON THE INDICATIONS FOR OPERATION.

By Dr. A. W. Russell.

The purpose that I have in view to-night is to discuss and illustrate the indications for treatment of fibromyoma of the uterus, and to emphasise the desirability of early radical operation. By this limitation, I am debarred from detailed reference to questions of pathology or diagnosis, but it is impossible to avoid mention of certain points bearing on the choice of operative procedure. I shall now enumerate what seem to me to be the chief considerations that should influence the mind in deciding whether the treatment should be operative and what the operation should be.

1. *The anatomical varieties* of fibromyomata, according as they are *subperitoneal*, *interstitial*, or *submucous*, and whether the tumour is *sessile* or *pedunculated*, need only to be mentioned as very evidently influencing the choice of treatment, the submucous polypoid tumour being easily twisted

off, while the pedunculated subperitoneal growth may have to be removed by abdominal section, and both varieties of sessile growth and also the interstitial form may be treated by enucleation or by hysterectomy, in one or other of its methods.

2. *Hæmorrhage*, even with a small fibroid, may very seriously affect the general health from simple loss of blood, so that ultimately even one of the less risky operations may be impossible. The handicapping effect of hæmorrhage is well illustrated in the two following cases :—

CASE I.—Age 38, single, dressmaker, admitted into the Samaritan Hospital on 2nd July, 1904, complaining of menorrhagia for four years, and pain in the right side. She had consulted me about nine months previously for profound anæmia, with breathlessness and general weakness, and enquiry as to her menstrual functions led me to suspect a local cause for the profuse menorrhagia, and to suggest a vaginal or rectal examination. This was done, and she was afterwards admitted into a private nursing home with a view to proper examination under chloroform, and curetting as a probable means of at least temporarily diminishing the hæmorrhage, and so allowing her time to recruit her strength. The heart was not quite normal, the area being enlarged, the first sound loud and slapping, and the second accentuated. A smooth firm tumour extended about 3½ inches above the pubes. Supravaginal hysterectomy was done on 6th July, the ovaries and tubes being left behind. The uterus showed an extraordinary number of minute submucous fibroids, making the uterine cavity irregular, in addition to interstitial growths and subserous projections. Excepting for an accidental staphylococcus infection of the wound, which delayed healing for a week or two, she made a good recovery, and was dismissed on 12th August.

CASE II.—Age 42, married twenty-five years, no children, admitted into the Samaritan Hospital on 28th June, 1904, complaining of pain in left side of almost a year's duration, and of irregular profuse hæmorrhage. Since April, 1902, menstruation became more frequent and lasted longer, once even for sixteen days. Taken into the Victoria Infirmary, she was operated on for myoma, which was removed. About four months ago menorrhagia began again, any strain or exertion exciting it. As this patient had an invalid husband, and led an arduous life to obtain the means of living, and as

hæmorrhage was beginning to be almost constant, and therefore interfering with her work, it was decided to remove the uterus, though it was comparatively small, and the vaginal route was selected. The vessels were secured with catgut ligatures. Bleeding was observed to be unusually free and generalised, but it was arrested. The patient seemed to suffer from greater shock from the operation than is usual in vaginal hysterectomy, but no specially anxious symptom was noted till night, when she became restless and thirsty, and the pulse ran up to 140. There being signs of hæmorrhage, vaginal plugging with gauze which had been steeped in hazeline was tried. When I arrived later in the evening, I opened the abdomen and again ligatured the ovarian arteries. Saline fluid was infused subcutaneously, but the patient succumbed. Though there had been considerable hæmorrhage, there is no doubt that the previous losses of blood and the severe drain on her strength by her husband's ill-health contributed largely to the fatal result. The uterus bisected showed an interstitial fibroid in the upper part of the body of the uterus.

3. *Pain* is not necessarily present, but it may alone as a symptom necessitate operative procedures. The last patient on whom I operated is extremely interesting in this respect; and I now show the specimen removed by abdominal hysterectomy a few days ago. The uterus, as you see, is small, but there are in its tissue several small fibroids which undoubtedly caused the severe pain of which the patient complained.

Case III.—Single, age 47, till three years ago an official in the Government service, but compelled to retire on account of her health, her somewhat taxing duties having proved too much for her, and digestive troubles resulting as well as nervous prostration. There was no suggestion of symptoms indicating pelvic disorder till August, 1904, although at irregular intervals she mentioned pain in her left side. Complaint of more severe pain in August led to an examination of the urine, and in September this pain was realised to have some relation to the menstrual periods. A month later, as it was more persistent, and as recovery after the period, which was now more profuse, was not complete, patient was examined in bed, and recto-abdominal palpation, the vaginal route being painful, discovered a slight irregular thickening of the uterine body more marked towards the left side. In

November, under an anæsthetic, two small fibroid nodules were distinguished in the body and another projecting more to the left about or just above the level of the internal os. The uterine cavity measured 3¼ inches. The left ovary was larger than the right, and movement from the left side seemed to be more limited than in other directions. As the pain increased both in severity and duration, necessitating occasional hypodermic injections of morphia, operation was decided upon, and last Thursday I did an abdominal hysterectomy by the supravaginal method, but in addition dissected out the remaining stump of the cervix, according to the suggestion made by Mr. Bland-Sutton at the recent Oxford meeting of the British Medical Association. The patient is doing well.

4. *Growth in size*, even if the patient has been almost unconscious of it, may be a sufficient indication for operation, for size of tumour in itself may seriously add to the risk of operation. Although now and then one finds very remarkable cases of successful operation, such as that recently reported by Dr. J. Clarence Webster, where the tumour weighed 87 lb., and the patient herself only 91 lb. after its removal, still the usual experience is that large size adds so greatly to the risk that operation may be refused by the best and most experienced surgeons. I had at one time under my supervision, during the last few years of her life, an elderly single lady, who had carried about for many years a massive fibroid, so heavy that it interfered with walking, and more than once by suddenly rolling from one side to the other, as she moved to get out of bed, pulled her to the floor. She had been seen by Keith and Knowsley Thornton amongst others. The neglect of operative treatment at the proper stage undoubtedly shortened life, besides interfering for many years with the enjoyment of its ordinary amenities. I give here the notes of a case where the size of the tumour became considerable before the patient in any way felt it inconvenient, but it almost suddenly made operative interference an urgent necessity. I also show you an admirable drawing of the tumour, in section, made by Dr. John Lindsay. The tumour itself was shown at a previous meeting of the Society. It weighed 9¾ lb.

CASE IV.—Age 45, married, admitted into the Samaritan Hospital on 29th July, 1903, complaining of pains in her sides for about a fortnight, with headaches and general malaise. She had had two pregnancies, the last resulting in a living child five years ago. Menstruation had been regular, and

FIBROMYOMA OF UTERUS SHOWING NECROBIOSIS

(DR. RUSSELL—CASE IV.)

UNIV. OF MICH.

there had been no intermenstrual discharge till a fortnight ago, since which time patient had also noted some incontinence of urine. The urine, on admission, was small in quantity, 30 oz. in twenty-four hours, and showed a trace of albumen, a few pus cells, large epithelial cells, and a few granular and hyaline tube-casts. She first noticed a lump on the left side four or five years ago, but there was no pain nor inconvenience, and she gave it no attention. She took a cold a fortnight ago, and had since felt pains in the sides, but said she was more upset by coming into the hospital than by any discomfort or suffering.

Inspection of the abdomen showed a large irregular swelling, more prominent centrally and to the right than on the left side. The tumour was smooth and somewhat elastic, and there was considerable tenderness on palpation of the upper abdominal region. It extended upwards on the right side, close to the ribs, but there was a clear percussion note for about three inches on the left side. History, symptoms, and examination alike pointed to the probability of the tumour being ovarian in origin. I operated on 27th July. After the patient was fully under the influence of the anæsthetic, I palpated the abdomen carefully, as it had assumed a different shape, the rounded projection in the right hypochondrium being more marked, and I then suggested that the tumour felt more like a uterine enlargement. On entering the peritoneal cavity, I found numerous adhesions, especially over the upper and right aspect, where there was at the projection above noted a thick adhesion to the omentum, and probably to the under surface of the upper abdominal wall, if not also to the liver. These being carefully separated the tumour was found to be uterine, with tremendously enlarged veins. The right Fallopian tube and its appendage were seen to be abnormally large, and a sudden gush of white material, very like pus, was observed to flow from the neighbourhood of the tube and ovary while these were being handled. The left broad ligament was ligatured from above downwards with catgut, and the plexus of veins was noted as being greatly distended and tortuous. The bladder was now separated and the cervix cut across, the vessels being secured in the process. The right broad ligament, however, could not be tied off from below upwards owing to the extension of the tumour under the peritoneum on the right side and the adhesions above. The latter were first dealt with, and then the tumour was shelled out of its peritoneal covering, and the ligature of the vessels completed. The operation was completed in the usual

way, about three pints of warm saline solution being left in the abdominal cavity. The patient had persistent nausea for a day or two, but otherwise did well, and was discharged within four weeks of the day of operation. The tumour measured 27¼ inches in circumference at its long axis, and it weighed 9¾ lb. The photograph shows that necrobiosis has commenced near the centre.

5. *Growth in size* usually causes other and sometimes very serious symptoms owing to *pressure* on other organs, for example, on the blood-vessels or nerves, resulting in one-sided œdema of the ankle and leg, pain like sciatica, varicose veins, or thrombosis. Continued pressure may so affect the blood-vessels that phlebitis may result. This finds illustration in the following case:—

CASE V.—Age 40, single, cook, seen November, 1892, owing to great swelling of the left leg and severe pain at a spot on the calf of the leg. This developed into a regular phlebitis, which it took about five months to cure. The tumour in the pelvis had, in the meantime, advanced to the level of the umbilicus. She was kept persistently on ergot, and it was calculated that in less than a year she had taken 50 oz. of it without any manifest effect. This patient was not operated on, as she refused permission, and she had ultimately to leave her situation. The tumour now reaches practically to the sternum. She is anæmic in appearance, and is able for little work.

6. *Another result of pressure* is seen in the urinary troubles that arise. *Frequency of micturition* may be and is often due to a small fibroid in the anterior wall of the uterus, as in a case at one time under my care in which there was very persistent frequency of micturition and irritability of the bladder. A small fibroid was discovered pressing on the bladder. This was removed by anterior colpotomy, which only gave very slight relief, probably owing to adhesions subsequently formed, and the condition was only properly relieved a year or so later by hysterectomy. There may, on the other hand, be retention of urine, due to a small fibroid near the fundus or in the posterior wall retroverting the uterus and dragging the bladder backwards so as to stretch the urethra and narrow it, or to the direct pressure of a fibroid becoming incarcerated in the pelvis, as in the following case:—

CASE VI.—Age 40, unmarried, housemaid, admitted into

the Samaritan Hospital on 11th July, 1903, complaining of pain in bladder and retention of urine, also pain in sacral region. Menstruation was regular, without pain, and not excessive. Patient had always enjoyed good health, and had nothing to complain of till about ten days ago, when she found she could not pass water. Her doctor passed the catheter twice a day, and three times on the following day, and once next day, after which she micturated without difficulty till her admission. On admission, however, she was in great distress, the bladder being distended to the umbilicus, and 37 oz. of urine were drawn off by the catheter. Besides a heavy deposit of phosphates, there was a trace of albumen in the specimen examined. On two successive days 20 oz. and 16 oz. were removed, but on the day before the operation urine was passed naturally. The tumour was found to be a dense fibroid, filling the pelvic cavity and extending upwards half way to the umbilicus.

I operated on 15th July. The peritoneal cavity was entered with a little difficulty, as the peritoneum had been pushed up by the distended bladder almost to the umbilicus. The removal of the tumour was afterwards easily accomplished, beginning with the left broad ligament, and cutting across the cervix before ligaturing the right broad ligament. Convaleseence was without incident, and she was dismissed four weeks after admission.

7. *Constipation and, ultimately, intestinal obstruction* may result.

8. *Pregnancy of the myomatous uterus* is sometimes a very serious and not altogether a rare complication. Few more difficult problems in treatment are set for the gynæcologist, but this is too large a subject for adequate treatment in the present paper, and I take only this passing notice of it.

9. Reference must be made to the *frequent association of tubal and ovarian disease with myoma of the uterus.* Statistics show this very clearly. Dr. Constantin, a French surgeon, in reporting 208 cases, noted 72 (or 34·6 per cent) with appendages affected. Mrs. Scharlieb, in a recent paper, mentions about 25 per cent, while Dr. Cullingworth notes only about 5 per cent, but he had excluded ovarian cysts, and included only what condition seemed to have a direct relation to the fibroid. I have noted this fact so often, that I am surprised now when I see no change in these structures.

I had one specially interesting case of this kind where the myoma itself had undergone calcareous degeneration, and

there was an unusually large blood cyst on the left side, measuring 6 inches in its longest diameter. Besides cystic ovarian disease, breast tumours are sometimes found, as in the following case :—

CASE VII.—Age 45, single, a domestic servant, admitted into the Samaritan Hospital on 29th June, 1904, complaining of menorrhagia of 12 months' duration. Menstruation began at 14, regular 28-day type, lasting three to four days, without pain. A year before admission menstruation began to be more profuse and to last for seven days. It soon began to come at shorter intervals. She never had a "flooding," however, till the time of her visit to the dispensary a month before admission. Ten weeks ago severe pain began in the right iliac and inguinal regions and down the front of the leg. There was also frequency of micturition and difficult defæcation. There was a small hard tumour in the left breast.

On 5th July, I did a supra-vaginal hysterectomy in the usual way, removing at the same time the right ovary, which was cystic, but leaving the left ovary. I then removed the part of the left breast containing the tumour.

The patient made a good recovery, and was discharged from the hospital four weeks after admission.

10. *Cessation of a growth, and even spontaneous disappearance of a fibroid*, must be admitted as possible, though it is so unusual and so uncertain that it would be foolish to calculate upon its occurrence. One case in my experience deserves noting. I was asked to see a i-para at full time, where obstruction to labour was suspected. I found a tumour, which seemed as large as my fist, in Douglas' pouch, and below the brim. The patient was anæsthetised later on, and the tumour was pushed up into the abdominal cavity. Labour, which had been threatening, now came on, and the patient was safely delivered. Nothing untoward happened. The tumour was felt afterwards; and the patient, at the end of the attendance, was warned of this tumour and its risks if pregnancy again took place. When she was about four or five months pregnant she came again to me, and I advised her to go into a nursing home, after examining her under an anæsthetic, and convincing myself of the presence of a movable tumour. I opened the abdomen and found only a small nodular interstitial tumour on the posterior wall of the uterus, about halfway between the fundus and the internal os, and therefore hardly in a position to have got into the pelvic

cavity at full time at the previous confinement. On the surface of the uterus at the situation of this tumour, there was an oval slightly puckered scar, the only indication left of the pedunculated subserous tumour which caused the obstruction on the previous occasion, and had since mysteriously disappeared. I, of course, did not interfere with the interstitial tumour, and the patient went to full term. She has since that time had another child, and I satisfied myself that the tumour is still there and not increasing in size, probably because of the recurring pregnancies.

11. *Degeneration of the ordinary myomatous structure* is very apt to take place, and we have such conditions as fibrosis, calcareous degeneration, necrosis, including that form known as necrobiosis without germ infection, as well as actual sloughing, œdematous and fibrocystic, or even myxomatous degeneration. Sarcoma is probably not a degeneration, but a new growth, or another form of development, and carcinomatous degeneration is certainly a misnomer. Any of these forms of degeneration increase the risk to the patient if there is delay in operating.

12. I have reserved for my last point, in this part of the subject, *the development of cardiac disease* in association with, and probably as the direct result of, fibromyoma. I have at present under my care four illustrative cases, two of them operated on nearly a year ago, one last week, and the fourth waiting operation.

Case VIII.—A widow, age 46, complaining of pelvic pain more or less for fifteen years, and having tried most of the forms of treatment, including tamponade, applications to endometrium, blistering, and the usual drugs. Patient was reduced to a state of chronic invalidism, so that the slightest exertion induced fatigue, and brought on her pelvic pain. Finding the uterus slightly enlarged and irregular, owing to what felt like small fibroid masses bulging specially to the right side where pain was most severe, and confirming this under an anæsthetic, I advised operation. Mr. Parry, who was consulted, confirmed this opinion, and performed a supra-vaginal hysterectomy, removing the appendages at the same time.

The patient is now, a year after operation, in the enjoyment of better health than she has had for a number of years, has no pain, and is able for the ordinary duties of daily life. It is necessary to note that after so long a period of invalidism, during which also the area of cardiac dulness had extended

out to the nipple line, and there was developed that cardiac weakness now known to be directly associated with an essential hypertrophy of the heart, and in addition there was established a distinct neurosis, it was not to be expected that normal health would be immediately restored by the operation; but in this case, in spite of a worrying cystitis, there was a consistent improvement, so that in a year's time considerable exertion is now no longer a pain, but a pleasure to her, and her bodily strength seems likely to be completely renewed.

CASE IX.—Married 7½ years, no children, age 44, first seen by me in February, 1898, when a small fibroid projection was felt to the right of the uterus, and another rather more prominent on the posterior wall. This consultation was mainly owing to sterility. In 1903, as constitutional symptoms, *e.g.*, inability for ordinary exertion, tendency to menorrhagia, and pain, were more urgent, careful examination was made, and the tumour was found to be very much larger. As, on this account, there seemed also to be danger of pressure giving trouble very soon, operation was advised. In April, 1904, I did a supra-vaginal hysterectomy, leaving the ovaries, which were apparently healthy. Her recovery from the operation was without incident; but the constitutional weakness, due to the prolonged semi-invalidism and to the cardiac disturbance, took months to disappear, and even yet there is a certain degree of cardiac enlargement.

CASE X.—Married, age 48, one child now grown up, complaining of vulvar pruritus as the most distressing symptom, but found to be suffering from a myomatous condition of the uterus, associated with an occasional and very irritating leucorrhœal discharge. Such causes of pruritus as diabetes, parasites, &c., were carefully excluded, and local treatment, as advised by Dr. Morton, was then used effectively, so as to check the pruritus and relieve the resulting dermatitis, the uterus having been in the first instance curetted. The most interesting feature of this case, however, is the sallow anæmic appearance, amounting almost to a cachexia, together with the enlargement of the area of cardiac dulness quite to the nipple line, together with considerable physical weakness. When such a complex of symptoms occurs, the time has come to consider radical measures, whatever be the size of the tumour.

The fourth instance of essential cardiac hypertrophy is already recorded in this paper as Case III. In this, as in

those already detailed, there was remarked the same complex of symptoms—cardiac hypertrophy, sallow, anæmic, anxious appearance, physical weakness and nervous excitability, which would doubtless in time have ruined the patient's health, and added greatly to the risk of an operation postponed to a later date to see whether the tumour would, in the meantime, become larger.

The foregoing considerations, as illustrated by cases in my own experience, have convinced me, as others are being convinced, that surgical interference should take place sooner in cases of uterine fibromyoma. The day of medical treatment so-called is almost over, at least so far as drugs go; and we may here dismiss ergot, hydrastis and hamamelis, the bromides and iodides, iron, and the other astringents, gland extracts, thyroid or mammary, as at the best only palliative measures. Electricity has had a wonderful vogue, and possibly it helps to check hæmorrhage, and the same effect may be credited to Pincus' method of applying steam by *zesto-causis*, but we put these in the same category.

It may safely be said that the outstanding indication of the cases to which I have referred, and of the extensive recent literature on the subject, is early recognition of the disease and early operation. By doing so, we avoid the deterioration in health and the essential cardiac disorder, the complication of size and its attendant evils, the degeneration of the growth itself, and the development of disease in adjacent organs. Hysterectomy for myoma seems to be passing through the same experience as did ovariotomy in days that are within the memory of most of us. No one would now think of leaving an ovarian cyst or tumour to develop; and the day is near when, owing to improved technique ensuring greater safety, the discovery of any myoma by the gynæcologist will be the signal for its early removal by one of the approved methods.

I wish to complete this communication by reference to the different operative methods, though it is impossible in the compass of this paper to discuss them critically. They fall into two classes.

1. Operations that aim at checking the growth, and even the possible disappearance of the tumour, by lessening the nutrition of the tumour.

Only a word needs to be said on this method. It is too uncertain to be relied on whether we adopt Tait's method of

tying the ovarian arteries and removing the appendages, or Gottschalk's plan of ligaturing the uterine arteries, *per vaginam;* or as Altuchneff recommends by tying them high up in abdominal section, or the more thorough and more frequently successful plan proposed by Martin, of Chicago, who ligatures the whole broad ligament.

The indications for more radical procedures than those methods make possible, are found in the fact that only interstitial fibroids are likely to be influenced, and also that it is not always possible to separate and ligature both sets of appendages. Such an operation may, nevertheless, be the only one available, and there is conclusive evidence that it is sometimes effective in arresting growth. The first patient on whom I operated for fibroid was a case in point. She was a housemaid, aged 35, suffering from a large pedunculated subserous fibroid, with projecting fibroid bosses here and there over the uterus, itself myomatous. After taking away the large tumour, I decided to remove the appendages. I saw and examined this patient two or three years later, when I found her in robust health, and the uterus was already distinctly atrophied.

2. The other class of operations involves the removal of the tumour alone (myomectomy), or of the tumour and uterus with it (hysterectomy or hysteromyomectomy) either by the vaginal or by the abdominal route. I shall not attempt to detail the indications that rule the choice of any variety of this operation. They are probably already clear enough to the minds of all. It is sufficient for me to say that I have usually done an abdominal hysterectomy by supra-vaginal amputation, and that, in addition, I am inclined now to excise the little stump of cervix in the way recommended by Bland-Sutton, a manœuvre that does not add to the risk of the operation, while it saves from after trouble of any kind, panhysterectomy being the ideal operation, but being, according to methods hitherto practised, a more serious risk than the method of supra-vaginal amputation usually followed. In a final word, a review of my own comparatively small experience, and a study of the most recent work of others, convince me that other indications demand radical and earlier operative measures besides the classical reason of hæmorrhage, and that especially there are liable to result by delay in operation, not only a growth in size and a degeneration or interference with the proper activity of other neighbouring organs, but also a distinct myomatous cachexia, indicated specially by the essential cardiac hypertrophy, blood changes, and consequent

physical weakness, which lessen the power of recovery, and therefore add considerably to the risk of operation.

Dr. Munro Kerr said that the present trend of opinion amongst gynæcologists was in favour of much earlier interference with fibro-myomata. It was, however, very difficult to say what were the conditions which indicated such treatment. Of course, hæmorrhage, pain, increase of growth, everyone now accepted as indicating immediate removal of the uterus or tumour. But what about the cases in which the tumour of only moderate size remained quite stationary, and caused no discomfort, &c.? Personally, Dr. Munro Kerr, while he would certainly not operate in cases of small myomata which were causing no symptoms, did approve of operative interference if they were of any size, for if they were of any size he invariably found that they grew larger, and had ultimately to be removed. The fact that the operation of hysterectomy was now so safe (the mortality was hardly over 2 or 3 per cent) encouraged us to recommend operative interference much more frequently. Supra-vaginal hysterectomy was the method he preferred, if it was at all possible. There was no doubt it was a little easier, and attended with a lower mortality than panhysterectomy. As regards ergot and electricity, he had never seen any benefit follow this administration, and he now considered such treatment hardly worthy of mention.

Dr. MacLennan instanced one case showing the difficulty of advising operation. The case had been treated many years previously by electrolysis, and had been claimed as a cure. The growth was mostly subserous, if not entirely so, and the only symptoms present were cardiac. The patient was near the menopause, and was very adverse to have an operation. The question whether a hysterectomy ought to include the cervix or be supra-vaginal was not considered to be of much importance.

The *President* remarked that Dr. Russell had omitted mention of myomectomy, which was the ideal operation for uterine myoma, although, unfortunately, it was only seldom feasible. Still, even in cases of multiple tumours, it was sometimes possible to enucleate the tumours from the uterine wall, and naturally in all cases of pediculated myomata no other operation should be thought of. With regard to the indications for operation, he thought the standpoint had completely changed of late years. Whereas formerly operation was regarded as justified only by the occurrence of

serious symptoms, and anyone who operated for myoma had to plead very pressing reasons, the reverse was now the case, and it was rather regarded as proper to operate, unless there were strong reasons for not operating.

Dr. Stark said that in more than one respect he differed from Dr. Russell. No mention had been made of the operations of myomectomy and enucleation; and yet, when these can be safely performed in suitable cases, they are the ideal operations, in so far as they conserve the uterus while removing the tumour. Dr. Stark had, in one married patient, removed five or six tumours, and though there had never been pregnancy before, yet after the operation it occurred, and the patient had given birth to healthy children. He did not believe that whenever a fibroid tumour was discovered the patient should be advised to submit to immediate operation, and thus prevent possible future disasters. Each case required separate consideration and advice. It was to be regretted that greater unanimity in the profession did not exist on this point, as it was of daily occurrence that patients received directly opposing opinions.

III.—DOUBLE OVARIAN CYSTOMA AND UTERUS AFFECTED WITH MELANOSARCOMA; WHOLE ABDOMINAL AND THORACIC VISCERA STUDDED WITH INNUMERABLE MELANOSARCOMATOUS TUMOURS.

By Dr. G. Balfour Marshall.

S. M'L., aged 30, was admitted to the Glasgow Royal Infirmary on 30th June, 1904, complaining of an abdominal swelling and gastro-intestinal symptoms. Her health seemed to have been good till November, 1903, when she began to suffer from epigastric pain, with a feeling of nausea after taking food. This continued, accompanied by such a progressive loss of strength, that about the middle of March, 1904, she was compelled to give up her daily work. In May she had in addition attacks of vomiting which persisted for a month, when, as the result of treatment, some improvement took place. This improvement, however, did not last long, as during the two weeks prior to admission to hospital her general condition became worse. She felt very weak, was fevered, and had severe sweating. Although on admission the abdomen was found markedly distended by a large cystic tumour, yet the patient had only been conscious of its presence for a few weeks. She had also suffered from

abdominal pain, which, however, was never severe. Menstruation, which began at the age of 14, had always been regular, of the four-week type, lasting three or four days, and accompanied by sacralgia, which lately had been more severe. During the intermenstrual periods there was leucorrhœa. Since March she had suffered from increased frequency of micturition, and the bowels were habitually costive.

On admission to hospital the patient looked ill and anæmic, with a temperature of 101·6° F.; pulse, 112; and respirations, 22. The tongue was dry and furred. Both feet and legs showed slight œdema.

Examination.—The abdomen was distended in its lower half to the size of a six months' pregnancy, and showed a faint linea nigra as high as the umbilicus. Percussion elicited dulness, extending upwards for 6½ inches from the symphysis pubis to the level of the umbilicus, and laterally for 3 inches from the middle line towards each flank, the tumour being 6 inches broad. A noticeable feature in connection with percussion was the variation in the area of dulness at repeated examinations. There was considerable tympanites, and the bowels overlapped the right side of the tumour especially to a varying extent, so that at one of the examinations the area of dulness even on deep percussion was only 3 inches broad. By palpation a tense ovoid cystic tumour could be felt arising from the pelvis, and resembling a six months' pregnant uterus both in size and shape. Auscultation was negative.

Vaginal examination.—The vulva and vagina were those of a virgin. The cervix was low down, and pushed close to the symphysis pubis by a cystic tumour which filled the whole pelvis and could not be moved.

Bimanually the uterus was found pushed against the anterior abdominal wall a little to the right of the middle line.

The tumour was diagnosed as a large multilocular cystoma, but from which ovary could not be determined. Subsequent *post-mortem* examination, however, proved that both ovaries were affected, one cystoma overlapping the other in such a manner as to make them apparently one tumour.

It was evident that the ovarian tumour could not account for the general condition of the patient, so that operation was out of the question.

There was at first a suspicion of typhoid, rendered more so by the presence of several rose-coloured spots on the abdomen and some enlargement of the spleen. The tongue, however, though dry and furred, was not like that of typhoid, and the bowels, when moved by an enema following on a dose of

castor oil, showed a stool which, though very fœtid, was not suggestive of this fever. Widal's reaction was also negative. In view of the possibility of typhoid the urine was tested for Ehrlich's diazo reaction, but also with negative results. Simon (quoted in Butler's *Diagnostics of Internal Medicine*) says that if this diazo reaction is not found in the second or third week of a supposed case of typhoid it is probable either that the case is very mild or that the diagnosis is wrong.

A positive reaction, besides being seen in the majority of enterics, is also obtained in various forms of tuberculous disease, septic conditions, &c.

The urine was acid; specific gravity, 1030, with a trace of albumen, but no sugar nor bile. After standing for some time exposed to the air it acquired a darkish-brown colour, not unlike what is seen after absorption of carbolic acid. At first I understood the urine was this colour when passed, and did not attach sufficient importance to it, merely contenting myself with excluding bile and phenol. It was not till the autopsy revealed melanotic sarcoma that the true nature of the pigment in the urine was suspected, and proved to be melanogen or melanin. V. Jaksch, in his *Clinical Diagnosis*, writes that the most sensitive test for melanogen is bromine water, which gives a yellow precipitate that gradually blackens. Another test is to add a few drops of a fairly concentrated solution of iron perchloride, which causes the fluid to turn grey, and if more be added a precipitate of phosphates falls, carrying the colouring matter with it. This, again, dissolves with an excess of the solution.

The presence of melanogen in the urine, although a useful aid to diagnosis, is not always obtained in cases of melanotic sarcoma, and this pigment may be seen in large quantities in wasting diseases. At the same time an earlier recognition of its presence might, at the least, have raised a suspicion as to the cause of the patient's symptoms.

From 1st to 4th July the patient's condition got steadily worse, the temperature ranging erratically between 101° and 103° F., and the pulse from 124 to 140 per minute. On the evening of 4th July she had an attack of dyspnœa. Though nothing definite was found in the lungs on admission, examination now showed the presence of râles, especially in the left base, with slight dulness to percussion, and a diminution of the respiratory sounds. Respirations were now 30 per minute.

One of the physicians saw her in consultation on the morning of the 5th, but would express no opinion as to the nature of the obscure disease.

Later on in the day the patient became collapsed, the pulse-rate rising to 168, with a falling temperature, and at 9 P.M. she died without a diagnosis having been made as to the cause of her general condition.

On 7th July a *post-mortem* examination was made by Dr. Workman, with the result that the thoracic and abdominal organs were found studded with countless melanotic sarcomata of various sizes. There were no external evidences of these. The detailed report is as follows:—

Heart normal in size, wall studded with small melanotic tumours.

Lungs voluminous, emphysematous, and studded throughout, but especially immediately beneath the pleura, with melanotic tumours of various sizes, from that of a pin-head to that of a bean.

Liver enlarged by the presence of numerous melanotic tumour nodules, some of which are as large as a Tangerine orange.

Spleen large and soft, and has a general pigmented appearance, but no definite tumour.

Suprarenal glands.—The left appears transformed into a melanotic tumour mass about the size of a Tangerine orange.

Kidneys show numerous small nodules under the capsule and throughout its substance.

Bladder has only a few nodules in its wall.

Mesentery, *intestines*, and *omentum* are studded with innumerable small nodules.

Lymphatic glands seem remarkably free from tumour formation. There is a multilocular cystoma of each ovary, the left one being fixed in the pelvis, while the right lies in the abdomen.

Both cystomata, as also the uterus, are studded with numerous small melanotic nodules, but one in the right cyst is the size of a walnut. The cysts contain a watery, brownish fluid due to the presence of melanin, and the inner walls are deeply pigmented with the same substance. Microscopical sections show that the cell protoplasm is first invaded, then the nucleus, when the whole cell is destroyed. Granules and needle-like crystals were seen in the sections, which may be some compound of melanin, as it does not seem to depend on the staining reagent used.

Dr. Carstairs Douglas said he was much interested in this

communication, especially when taken along with the microscopic section of a curetting shown by Dr. Stark. In trying to diagnose melanotic sarcoma by the urine it must always, as Dr. Marshall had remarked, be kept in mind that the urine first passed might be of ordinary yellow tint. At this stage it contained melanogen, a colourless chromogen which gradually became dark (formation of melanin) with time. He had applied the bromine and the ferric chloride tests to the urine in Dr. Stark's case with negative results. He did not know what the crystals could be which Dr. Marshall had found in the tissues from his case.

MEETING V.—22ND FEBRUARY, 1905.

The President, DR. J. K. KELLY, *in the Chair.*

I.—SPECIMENS.

A. BY DR. J. K. KELLY.

1. Pregnant uterus with a dermoid cyst of the ovary, removed from a patient who suffered from uncontrollable vomiting of pregnancy. The patient died of hæmorrhage from the bowel.

2. A myoma enucleated from the uterus of a patient, æt. 22.

3. A myoma removed by enucleation, followed by hysterectomy.

B. BY DR. SCOTT M'GREGOR.

1. Small cervical fibroid attached by an attenuated pedicle to the cervix, the pedicle consisting of blood-vessels alone, which fed the tumour. The pedicle had ulcerated, with the result that a most alarming hæmorrhage ensued, the patient passing clots as large as one's fist.

2. A fibroid growing on and involving the antero-lateral lips of the cervix, causing a hypertrophy and prolongation of the part involved, with protrusion outside of the vagina of the fibroid tumour, and consequent resulting ulceration of its exposed surface, giving the appearance of an elongated cervix with erosion.

II.—DISCUSSION ON THE TREATMENT OF ENDOMETRITIS.

Dr. Oliphant introduced the discussion by reading the following paper:—

When your secretary asked me if I would be willing to open a discussion on the treatment of chronic endometritis, I am afraid I did not realise the difficulty of the task, nor my ignorance. However, this is to be a discussion; so I mean to lay before you a few of my difficulties, in the hope that I, at anyrate, may get some enlightenment from the experience of other Fellows to-night.

We are met by the initial difficulty—what is chronic endometritis? In a paper read some years ago in this room, before one of our kindred societies, by one of our former presidents, the author said, by implication if not directly, that chronic endometritis was the result either of gonorrhœa or of abortion. From that view of the subject I must express my dissent, though Dr. Pollok is not alone in his opinion. For example, if we turn to the text-book of Dr. Howard Kelly, of Baltimore, we find this statement, "Chronic endometritis is rather rare. The prevailing habit of describing all scrapings, particularly because of their abundance in some cases, as examples of endometritis, is greatly to be deplored. It interferes with our getting any satisfactory idea as to the frequency of the real affection, and tends to encourage unnecessary operating. The so-called 'fungoid endometritis' is not a pathological entity at all, and the name ought to be expunged from gynæcological works.

"Chronic endometritis is oftenest associated with old cases of pyosalpinx; it is rarely ever found in the ordinary scrapings.

"The slight liability of the uterine mucosa to this affection may be ascribed to two factors. In the first place, the tendency of pus-containing tubes is to complete closure at the uterine end, and so shutting off one avenue of infection [this makes it clear that Kelly believes the endometritis to be caused by the pyosalpinx]; and, in the second place, the form and position of the uterine canal are such as to afford good drainage."

We were told in this room on another occasion that pyosalpinx was caused by intra-uterine applications; but if pyosalpinx is the cause of the endometritis, what is the original condition of the uterus for which the intra-uterine applications have been made that in turn cause the pyosalpinx?

By chronic endometritis I understand a common condition which we meet in a large proportion of the women coming to the out-patient department of our hospitals, and in a not much smaller ratio in private practice also; that is, if by the name endometritis we include catarrhal affections of the cervical mucosa, as well as the more severe forms which are associated with enlargement of the uterus, and accompany the states named congestion, hypertrophy, areolar hyperplasia, subinvolution, or metritis, according to the etiological hypotheses of the sponsors. Metro-endometritis is a convenient if barbarous name to indicate the combined more serious form.

Dr. Thorburn went so far as to say that the gynæcologist might be almost pardoned for considering cervical catarrh as normal, at anyrate in married women. And in spite of what I have just quoted from Dr. Howard Kelly, the affection may be considered so common that no excuse need be offered for choosing it as the subject of to-night's discussion. "The newest and most brilliant achievements of modern gynæcological surgery," says Dr. Thorburn, "are all very well in their way. Ovariotomy, hysterectomy, are most striking in their results when we see them grouped in the practice of the few, but they are concerned with only a small fraction of human suffering compared with that which is daily and hourly, too often vainly, demanding relief at the hands of the great body of the medical profession, on account of chronic inflammatory affections of the uterus. Sometimes as the cause, sometimes as the effect, of other uterine diseases, or of various morbid states of the system, metritis (and by that he means endometritis as well) meets us at every turn, and for want of the time and hygienic conditions necessary to its cure, it continually baffles our efforts at permanent relief." After stating that such cases are apt to be neglected by practitioners, and naturally fall into the hands of quacks, he continues, "The difficulties of the subject depend not only upon the intractable nature of many of the cases, but also upon the obstacles which many meet with in acquiring such a clear knowledge of the pathological facts involved as will fit in with and lead to definite principles of treatment." These words seem as true to-day as when they were written twenty years ago; for so far as my experience and my reading go, pathology does not seem to give us much light on the principles of treatment, which still in many cases remains of little avail. If any of the Fellows who work at pathology are in a position to lay down pathological indications for treatment, I am sure we will all hear them gladly.

The late Dr. Gebhard, in his work on gynæcological pathology, describes various forms which the uterine mucosa assumes in endometritis, according as the inflammatory process attacks chiefly the glandular elements or the interstitial tissues.

First, he describes endometritis glandularis hyperplastica, in which the increased number of the glands reduces the interspaces to a fifth of their normal size. This may be specially marked in the deeper layers from branching of the inner ends of the glands.

Secondly, he describes an endometritis glandularis hypertrophica, in which the glands are increased in size rather than in number. He lays special stress on the fact that burrowing of the glands into the muscular tissue is not evidence of malignant disease. In their increased length, the glands assume a corkscrew or in some cases a zig-zag course.

In the interstitial forms of endometritis, he describes a condition in which the glands are diminished in number, while the interstitial tissue is increased in amount, and also is infiltrated in the acuter stages with round cells either diffusely or in small masses; and in the chronic stages these cells become spindle-shaped. In the superficial layers the cells become five or ten times larger than usual, and are individually indistinguishable from decidual cells. As the disease becomes chronic, the spindle-cells lead to general cicatricial contraction and to atrophy, with the glands lying obliquely or flat, often forming retention cysts.

The form which is described under the name of endometritis exudativa is specially associated with dysmenorrhœa. In this form the glands are separated, not by increased amount of interstitial tissue, but by dilation of the interglandular lymph channels. These become filled with albuminous inflammatory material, or sometimes with mere serous œdematous fluid, or in other cases with effusions of blood leading to hæmorrhage. This last condition was found in a uterus removed for hæmorrhage (by Gebhard).

You have heard that Gebhard associates his exudative form of endometritis with dysmenorrhœa and with hæmorrhage; the next form in his classification is the exfoliative, or to name it from its clinical features, membranous dysmenorrhœa, a condition as mysterious in its etiology as it is rebellious to treatment.

The formation of the membrane seems to take place just before the onset of the period, as in the intervals between the periods portions of the mucosa removed by curetting are normal in histology. The superficial layers of the mucosa are

thrown off more or less in continuous sheets, even in some cases forming a complete cast of the uterus. This form is of the interstitial type, for the glands are diminished in numbers and lie widely separated. The stroma has circumscribed patches of round-cell infiltration. The meshes of the interglandular tissue are filled sometimes with finely granular exudation, sometimes with blood. In these membranes, also, are found large cells like decidua cells; but though these are comparatively few in number and not so clearly visible, considerable caution and much experience are required in establishing a diagnosis between a menstrual membrane and one thrown off in an abortion. The glands are zig-zag in shape, not from increase in their length, but because of the pulling and stretching of the membrane in its passage through the genital tract. In certain other cases, skin-like casts are expelled which consist of fibrine; possibly these are the cases reported as cured.

That a chronic inflammatory process should continue confined to one element is unusual, so we commonly find the glandular and interstitial types combined, one element predominating at one part of the mucosa, and the other in another part; as a general rule, the interstitial process is more marked in the superficial layers, and the glandular in the deeper layers of the membrane. To this mixed form Gebhard gives the name of diffuse endometritis, and he asserts that it is in this mixed form that we have produced the greatest amount of thickening of the mucosa that we find in benign intrauterine growths. This thickened mucosa is irregularly raised on its surface, and contains in the hypertrophied interstitial tissue a large number of convoluted hypertrophied glands, often dilated and cystic. The irregular protrusions of the mucosa may go on to actual formation of polypi; at first sessile, they gradually become pedunculated. These polypi are distinguishable from the cervical mucous polypi by their attachment, of course, and by the character of the glands in their substance. They have been termed adenomata, though the tendency now is to restrict that term to malignant growths. In a case recently curetted by myself, the pathologist reported that the scrapings resembled mucous polypi with enlarged glands which had papilliform ingrowths. The stroma showed round-celled infiltration, and contained many thin-walled blood-vessels. I presume that the rupture of these thin-walled vessels had caused the recurrent hæmorrhages which led me to use the curette. This diffuse endometritis, as described by Gebhard, is the fungous endometritis of Olshausen,

a condition which, as I have already quoted, Kelly says does not exist.

The literature of the pathology alone is enormous, but the subject for to-night is treatment, so I shall not enter on it nor on the *rôle* of the ubiquitous microbe in the etiology. Here, too, the literature is overwhelming, and unfortunately the evidence is very contradictory; truly, in multitude of counsellors there is sometimes confusion of wisdom as well as safety.

If, and I admit the if covers a multitude of sins, we exclude the question of prophylaxis, or to put it practically, apart from asepsis in our manipulations, the microbe does not seem to have much bearing on the principles of treatment.

In regard to the symptoms, I feel disposed to say that there are none characteristic of this disease. We find the common gynæcological symptoms, such as general debility, which, of course, may be a cause rather than a result; weakness in the back; pain in the back or in the iliac regions; infra-mammary pain, one of the most intractable symptoms; leucorrhœa; menstrual disturbances, that is, menorrhagia or dysmenorrhœa; sterility may be the complaint, or, if conceptions do occur, they often terminate in abortions, which are often the reason of the woman seeking advice. By some authors, menorrhagia is called the characteristic symptom; but any or all of these symptoms are found in all sorts and conditions of pelvic disease. I have for years told the students at the dispensary that the patient's history may sometimes give you a hint of what you may expect to find, but that her complaint carries you no farther than to justify you in proposing a pelvic examination; but I am an agnostic, and perhaps some of our Fellows can diagnose endometritis on the lines of a Sherlock Holmes.

In the more severe cases of metro-endometritis, a dragging weight and tenderness is the most distressing symptom, and as it is aggravated on exertion, is probably the chief cause of the invalidism of this class of sufferers.

Before discussing general principles of treatment, let me say a word or two on some particular types. In some of these, the etiology is fairly clear; in others, quite obscure.

I do not propose to speak to-night of the specific form of endometritis arising from gonorrhœa, for that, when it has become chronic, is commonly part of a general inflammation of the pelvic organs, involving the tubes, ovaries, and pelvic peritoneum as well. Nor shall I speak of tuberculosis, which, except as part of a general tuberculosis, rarely attacks the

endometrium. The gonorrhœal form will probably require to be attacked by operation on the tubes or ovaries, while the tubercular form would require similar treatment if operable at all.

Membranous dysmenorrhœa is the clinical name of endometritis exfoliativa, a condition of which the causes are quite unknown, though it occurs chiefly in married women. Free dilation of the cervix, followed by curetting and the application of escharotics, or intra-uterine drainage, have indeed been claimed as having given good results, but most authors admit, in more or less elegant periphrasis, that the disease is quite intractable. Arsenic internally may be given a trial, but I am afraid rather as a placebo than in expectation of a cure; and the same may be said of guaiacum.

Senile endometritis, or as Dr. W. L. Reid has named it, senile atresia, is a condition which allows us to speak more cheerfully; for this state of the uterus is usually readily curable, though it often causes symptoms resembling those of cancer. These symptoms have often been described to this Society, and I need not dwell on them, but I may remind you that they come on after the menopause, and that the patient usually complains of hæmorrhage and of offensive discharges, which are so acrid in character as to excoriate the vagina and vulva. The passage of the sound is obstructed, and when it has been forced through the cervix its withdrawal is often followed by a gush of foul-smelling purulent discharge, for the cervical canal has become somewhat prematurely closed after the menopause, probably by old-standing endocervicitis, and the secretions are pent up inside the uterus. When these have sufficiently accumulated they burst through the cervix, and thus give rise to the initial hæmorrhage; the insufficient drainage of the uterine cavity leads to septic infection of its contents, and the discharge becomes purulent, if not so already, and of offensive odour. As in cancer, too, the secretions are often so acrid as to cause much distress.

Hæmorrhage after the menopause is often looked on as a pathognomonic sign of cancer, and it is likely that some of the cancer cures claimed by quacks have been of this nature.

A very moderate degree of dilation, say to No. 8 of the English catheter scale, is sufficient to permit of one or two applications of pure carbolic acid to the endometrium; this is usually enough to improve matters very decidedly, if not actually to completely cure the patient. This is the sort of case that is a satisfaction to patient and practitioner alike.

Perhaps the commonest causal antecedent of endometritis is parturition, either at term or at an abortion. It is not unreasonable to assert that wherever abortion has been incomplete, or where there has been a moderate degree of sepsis, there an endometritis will inevitably follow. If there be some decidua left in the uterus, there will in most cases be troublesome meno- or metrorrhagia; and even a slight degree of sepsis will entail subinvolution, or, as we may call it in this connection, metritis or endometritis. Conversely, endometritis is a common cause of recurrent abortion, and as each abortion leaves the endometrium worse than before, the process continues in an ever widening vicious circle, until sterility or the menopause interrupts the course of events.

It is obvious that here the treatment *ought* to be prophylactic, and if the profession usually had the treatment of abortions in their own hands, we could make sure that the uterus was thoroughly emptied, and we could at least avoid infecting the uterus ourselves, and this manner of causation might to a large extent be eliminated; but, unfortunately, many women take so little care at such times that they do not give the doctor an opportunity of treating them at all, and do not themselves take any precautions or even rest, so that there is little chance of involution proceeding naturally. Many of our patients, accordingly, already suffer from an endometritis following on abortion when they first consult us.

I think we may say dogmatically that if a woman presents herself two or three weeks after an abortion, complaining of hæmorrhage, and if the bleeding is not arrested in a very few days by rest in bed, and by such drugs as hamamelis, hydrastis, ergot, or viburnum, we should then curette at once.

When a woman suffers from a moderate degree of septic infection after an abortion, with the inflammatory action passing beyond the uterus to invade the other pelvic organs and tissues, it is not possible to give precise indications for local treatment. Each case must be taken on its merits, but I think that if we find the os patulous, and if there are other evidences of some *débris* being left, then we are usually justified in carefully using the curette.

Also, if there is no evidence of pelvic peritonitis, and the endometrium is found unhealthy, curetting is the right treatment, and should be undertaken early, that is if one or two applications to the interior of the uterus have not produced marked improvement in the local conditions.

In the endometritis following labour at term the question is, as a rule, even more complicated. For the woman is often run

down in general health, anæmic, and badly nourished; in some cases she has been in poor health previously, and has not been able even to suckle her infant, or she is exhausted by too frequent child-bearing, or, I should say rather, by having borne her children at too short intervals; or she is pulled down by some intercurrent illness, such as albuminuria; or she is worn out by prolonged lactation, as we often find among our poorer classes, who prolong their breast-nursing in the vain hope of postponing the next pregnancy.

In all such cases the treatment must be directed to the improvement of the general tone of the patient in the first instance.

Again, lacerations of the cervix—common when the forceps has not been used, but in too many cases undoubtedly the direct result of the reckless use of instruments—lacerations of the cervix are the exciting cause of the metro-endometritis.

These post-partum cases form a large proportion of our gynæcological patients—cases rebellious to treatment, often incurable, an opprobrium to the profession, the happy hunting-ground of charlatans.

If unhealed tears are found in the cervix, they should be mended; at anyrate, I am a believer in the value of this procedure, for by repairing the wound you close an avenue of septic absorption, the uterus improves in tone, diminishes in size, and in many cases the woman is relieved of her inability to walk or to take any form of exercise. We thus help to lift her from that wretched life of invalidism, to get rid of which should be our chief aim.

The lacerations may be simply repaired, or if there is much hypertrophy or very extensive irregular splitting of the cervix, amputation of a part of the vaginal portion is as easy and more thorough. I see that Dr. Barbour is inclined to doubt that repair of the cervix tends to lighten the uterus, and yet in almost the same sentence he advocates the amputation of the cervix with that object.

I have in a few cases practised ignipuncture of the cervix when it has been hypertrophied, and, I believe, with benefit; at anyrate, it may be tried before submitting the woman to an operation like amputation, which entails some days at least in bed.

Along with or outwith parturition any state or condition leading to congestion of the uterus tends to chronic endometritis. Such exciting causes must be looked for, and removed if possible; thus cirrhosis or congestion of the liver of alcoholic origin must not be overlooked, nor cardiac disease.

A few days ago I saw a case of valvular obstruction and incompetence, which I have no doubt was the cause of the menorrhagia complained of; and I recently sent a young woman into hospital who has a retroversion, but whose chief trouble depends, I am satisfied, on a cardiac lesion.

Local causes of congestion must not be missed, such as displacements and flexions. The symptoms in cases of displacement are often due to the resulting congestion and subsequent endometritis. A pessary which simply lifts the uterus without actually reducing the displacement is often enough to relieve symptoms.

Tumours, such as fibroids, are a common cause; and in those obscure cases of fibroids with high temperature it is probably the absorption from the unhealthy endometrium that induces the fever. After the expression of opinion in this Society a few weeks ago, it may be said without fear of contradiction that the tendency is to treat these cases by removal of the fibroid, with or without the uterus and its appendages, though I see no reason in most cases for removing the ovaries and tubes as well as the uterus. At the same time it may be borne in mind that a considerable number of cases of bleeding fibroids have the hæmorrhage checked by curetting when drugs have failed, and probably the benefit ascribed to the Apostoli electric treatment is due to the action on the endometrium rather than on the fibroid.

Tight lacing is always denied by the patient, and it is of no use to preach about it; but the patients can be advised against too many skirt fastenings round the waist. When the subject has been taken up seriously from the æsthetic side we may hope to get rid of this element in the etiology of pelvic disease; perhaps the Japanese alliance will work the miracle for us.

Bad hygienic surroundings are difficult to combat; the long hours of standing in shops and factories, or of sitting in stuffy sewing-rooms are not easily got rid of; here the bicycle is of more use than much professional assistance.

In the article in Clifford Allbutt's *System of Gynæcology*, Dr. Barbour states the case very neatly for general treatment. He says "the importance of constitutional treatment must be fully recognised, as there is no doubt that far too much attention has been given to local treatment. In most essays on the treatment of cervical catarrh, we find pages given to local applications and to operative procedure, while general treatment is dismissed in a paragraph. This makes the local, as against the general treatment, bulk far too largely in the

mind of the practitioner. While, on the other hand, it may be argued that there will always be a class of patients who are not satisfied unless something is being done directly for them, we must remember that, on the other hand, irreparable harm often results from lines of treatment which direct the patient's attention to the pelvic organs."

It is partly, one might say in great part, the impossibility of placing the woman in a healthy general state that makes so many of these cases intractable; but it must not be forgotten that neurasthenia is not a disease of the poor only, and we must be most careful to explain to the patient exactly what we mean if we prescribe rest. Above all things, let us do nothing which may induce a habit of invalidism. A woman who is always lolling about on a sofa is a nuisance to herself and to her household. When I wish a lady to rest, I always prescribe definite times at which she must rest. There is to be no sitting in the drawing-room with the feet up on the sofa, no lounging in the evening when the husband comes home. I would banish the sofa from the drawing-room altogether. Anyone who has ever lived in a house with a valetudinarian will appreciate the force of my appeal. Let the patient then rest, let us say, for an hour before lunch and for an hour before dinner. Let the lying down be really lying down in the bedroom with the frock off, so that there is less chance of being disturbed. Many ladies come home at the last minute, scramble through their dressing, and are naturally too tired to eat or to spend a rational evening. You can advise her to do the greater part of her dressing before lying down, so that she has only to slip on her gown before dinner, and so can be rested and fresh and fit to come down to the drawing-room to receive her husband or her guests. Whatever we do, let us do nothing to encourage the loafing habit; it is bad, physically and morally. The patient to whom we prescribe rest must not be allowed to think that all work is forbidden her; make her get through a reasonable amount of walking. So-called carriage exercise may be fatiguing, but does not take the place of a brisk walk. As for the motor car, it induces an excessive appetite, making this sort of patient eat more than she can digest, and, besides, it creates an artificial excitement exhausting to the patient and otherwise undesirable.

If *complete* rest is essential, as it sometimes is in severe cases of metro-endometritis, it should be away from home surroundings, as in the so-called Weir-Mitchell treatment. Under the care of a judicious nurse, local treatment, such as

douching, can be carried out thoroughly if it is really required. Massage to restore the general tone and careful dieting are all more easily obtained than in the patient's house, where she can order the servants to do what she wants.

The various substances recommended for intra-uterine application are endless in number, and I need not enumerate them. Carbolic acid seems, perhaps, still to be the favourite; some men prefer to use it diluted with an equal quantity of camphor, spirit, or some such substance. Iodised phenol, that is, 40 grains of iodide to the ounce of pure carbolic acid, has the reputation of being a more powerful agent than pure carbolic acid, but it has the disadvantage of having a very persistent and disagreeable smell, and of being so corrosive as to damage instruments of almost any metal; it affects even gold plating. Some men tell me that they get good results with acid nitrate of mercury, but I have no personal experience of it. We were told some time ago in this room that applications of carbolic acid were one of the most prolific causes of salpingitis. I do not believe that; but be that as it may, there can be no doubt that some of the more caustic applications, such as zinc chloride, have frequently been followed by stenosis of the cervical canal. Whatever drug we use must be applied thoroughly to the endometrium, and not merely to the mucus covering it.

We must, I think, confess that local treatment by intra-uterine medication or by glycerine pads gives, at best, in many cases only temporary benefit. With the class of patient, at anyrate, that we see in our hospital dispensaries, I am more and more inclined not to prolong the treatment by local applications, but to send them early into hospital for curetting. I am aware that it has been the custom to do curettings in the Out-patient Department at the Royal Infirmary here. Until quite recently, our surroundings at the Western Infirmary Dispensary did not allow me to feel justified in doing any operative work among the outdoor patients. I am not yet quite satisfied that such an operation as a thorough curetting is a safe procedure in the case of a woman who is to be sent to a dirty home, where she can command no attention or care. I should feel afraid of septic infection, but I am sure all of us will be glad to learn from Dr. Balfour Marshall's experience. It would certainly be a great saving to the hospitals if such cases can be safely treated as out-patients, as well as a boon to the women themselves, who often have to wait for admission to the wards. Except after abortion, it is usually necessary to dilate the cervix under an anæsthetic,

and it is precisely in the cases after abortion that the risk of sepsis seems to me to be greatest. Even if the women are not already affected when they present themselves for treatment, they have lost much blood and are consequently reduced in condition. However, as I said at the beginning, my object is to elicit information. Actual experience is of more value than much hypothetical argument, and I do not forget Dr. Goodell's dictum "that he is the most successful gynæcologist who is intelligently the most plucky."

But even the use of the curette is often disappointing, and I am unable to lay down any general indications for it. The pathologist can give me no help; perhaps some of the Fellows can give us some clinical rules for our guidance. Apart from the cases after abortion already mentioned, I think that a large proportion of cases suffering from hæmorrhage are benefited; beyond that I am not inclined to go. I know that some cases characterised by profuse or offensive leucorrhœa have received scarcely even temporary benefit.

Summary.—Every woman must be treated individually, and not as a case of endometritis.

The general health of the woman is at least as important as the local disease.

We must educate women to understand the value of care after abortions.

After labour at term, we must try to secure and maintain a thorough degree of involution, encouraging our patients to suckle their infants for a reasonable time, that is, to avoid the extremes of no breast-feeding and of over-lactation.

Injuries and displacements of the uterus are to be repaired and rectified. Tumours and other local or constitutional causes of congestion are to be sought for and treated on rational principles.

Above all things, do not let us magnify the uterine trouble in the woman's mind, and so make an invalid of her.

Dr. Stark said that inflammation of the mucous membrane is frequently confined to the cervix, and when there is also a laceration the lips of the everted os present granular patches, the ducts of the glands become blocked, and retention cysts form. The proper treatment in such cases is either trachelorrhaphy or amputation of the vaginal portion of the cervix, after which many of the symptoms usually associated with endometritis disappear.

It had been said that "membranous dysmenorrhœa" is an incurable disease, and that in its association with endometritis

it produces sterility, but Dr. Stark can speak of a case in an unmarried woman which he brought before the notice of the Society a few years ago, in which complete casts of the uterus were passed almost monthly. Not only was there cure of the condition after curetting, but the patient, who is now married, is at present pregnant. That endometritis occurs in virgins is not open to doubt, but most cases are curable by attention to the general health, fresh air, and exercise. Curetting, or the application of caustics, is not only unnecessary, but may produce much harm in such cases. In endometritis resulting from imperfect emptying of the uterus or repeated miscarriages, the only treatment which should be adopted is curetting, but it requires to be undertaken with all precautions against sepsis.

Dr. Richmond recommended one or two applications of carbolic acid to the interior of the uterus at intervals after curettage.

Dr. G. Brownlie M'Kendrick spoke of the value of the flushing curette, which could easily be used on the last day of menstruation, when no dilatation or general anæsthetic were required; also in the general treatment of abortion, with successful results.

Dr. Scott M'Gregor said—In the treatment of chronic endometritis, one has to discover the cause and remove it, otherwise there is no lack of treatment, and the difficulty one finds is to know what is best to employ. Local measures are in themselves essential, but one must never forget to combine constitutional remedies at the same time. My experience with regard to membranous endometritis corroborates that of Dr. Oliphant, and I cannot recall any individual instance of cure resulting from curetting, applying iodised phenol, or the application of electricity. In senile endometritis, however, it is with a feeling of satisfaction that one looks back on the several instances of the almost immediate relief experienced by patients following the local treatment, and I recall one instance in particular where the patient, aged 70 years, was confined to bed with this distressing complaint, the ichorous discharge producing an eczematous eruption from the labia as far down as the knees. The result of two days' treatment was at once followed by her speedy recovery. I should like to mention here the endometritis and erosion of the cervix found in young unmarried girls; leucorrhœa, backache, and

painful menstruation are the symptoms that they complain of. In douching, should the nozzle of the syringe impinge against the eroded cervix, pain is experienced; curetting in such cases gives the most satisfactory results.

The menorrhagia in cardiac cases yields to curetting *pro tem.* I recollect a patient who had a marked systolic mitral murmur, with great menorrhagia. Local and constitutional treatment was adopted for a considerable time, with no marked benefit; I ultimately curetted; this was followed by a marked improvement; she subsequently became pregnant. A friend of mine attended her in her confinement, and everything went well until the fifth day, when her pulse suddenly began to fail, and she died the following day.

Dr. Oliphant mentioned the presence of fibroids, with a recurrent high temperature. I should just like to quote a case that came under my care during the autumn of 1904. A lady, aged 65 years, had an attack of vomiting; there had been, a few days previously, a profuse offensive vaginal discharge. A few days later there followed feverish symptoms, the temperature running between 100° F. and 102° F., while the pulse was never under 100, sometimes as fast as 130, per minute; this continued for three weeks. She had a fibroid about the size of a cocoanut on the right side; the leucorrhœa ultimately disappeared, the fever subsided, and she is now quite well, but still retains her fibroid.

Dr. Munro Kerr said that in cases of purulent offensive discharge from the uterus, where curettage failed to give relief, he had obtained benefit from applications of carbolic acid to the interior of the uterus.

Dr. Balfour Marshall said that in his remarks he would exclude endometritis associated with such well-known causes as gonorrhœa, pyosalpinx, and other pelvic conditions external to the uterus. The pathology of endometritis was still obscure, there were no symptoms pathognomonic of the disease, and a diagnosis was only provisional until the endometrium, removed by curetting, was microscopically examined. Curettings should always be examined to note the pathological conditions, which varied so much.

Milder cases of so-called endometritis often yielded to remedies short of operation, *e.g.*, by the internal administration during the week preceding the menses of such drugs as hydrastis and viburnum prunifolium, or the combination of these found in liquor sedans; by improving the general health;

by careful avoidance of constipation; and, locally, by hot douching and ichthyol glycerine tampons. Severer cases demanded operation, and the best results were seen where menorrhagia was a leading symptom and the endometrium hypertrophied. The results were not so often satisfactory when leucorrhœa was the main symptom.

Curettage was undoubtedly the best operation, more especially as the curette was required for purposes of accurate diagnosis as well as for treatment. It was a perfectly safe procedure if carefully performed and carried out under rigid antiseptic and aseptic precautions. He had only had one case followed by pelvic peritonitis, and that a very mild attack and localised to one side, which was probably due to some existing tubal mischief not evident to examination, even under an anæsthetic. He had not infrequently curetted selected cases in the Out-patient Department of the Royal Infirmary, where he also curetted every case of incomplete abortion that came for advice, and he had never had a bad result. He sent the patient home to lie in bed for a week, and always saw them again within a fortnight. He contented himself with simple douching of the uterus after curetting, and considered it quite unnecessary to follow the operation by swabbings or injections of iodine, phenol, or such like.

He considered the Playfair method of treatment by swabbing the uterus, especially as commonly carried out, without thorough antiseptic precautions, a very dangerous proceeding. He had had a case of severe pelvic peritonitis some eight or nine years ago following an application of iodised phenol, and since then had quite abandoned this treatment. He had also seen a number of cases of pyosalpinx and pelvic peritonitis undoubtedly caused by such applications.

In any case, swabbing the cavity of the uterus was unsatisfactory, as it only acted on the surface, and if the mucosa were thickened, the deeper portions remained in their pathological condition.

Playfair's method, if done by those who still believed in it, should be carried out under the strictest antiseptic precautions. The cotton-covered probes should be previously sterilised, and the vagina and cervical canal antiseptically cleansed before swabbing the uterus.

In conclusion, he uttered a warning against the indiscriminate extent, he might say abuse, of curetting. He had seen numbers of cases where it was advised when quite unnecessary, and in other instances it had been done on patients with such

serious complications as pyosalpinx, which had evidently not been recognised.

The *President* regretted that Dr. Oliphant had not discussed the pathology of endometritis, as it was only on the pathology that a rational treatment could be based. For the last ten or twelve years, he had quite ceased to use intra-uterine medication. In his own dispensary practice and in cases treated by others, he had seen many cases of pelvic inflammation which he attributed to this mode of treatment. It was based on the idea that endometritis was an inflammation, but in the great majority of cases it was not so. If a case demanded local treatment, he curetted the uterus, dilating the cervix if necessary, and followed the curetting simply by a free intra-uterine douche of either sterilised saline solution or some weak antiseptic. He never followed the curettage by caustic applications to the endometrium, and he had no experience of the recurrent cases of purulent endometritis that some of the members had described.

Dr. Oliphant replied.

MEETING VI.—22ND MARCH, 1905.

The President, DR. J. K. KELLY, *in the Chair.*

I.—SPECIMENS.

A. BY DR. S. J. M. CAMERON.

1. Dermoid cyst.
2. Chart of a case of ovarian cyst, with torsion of the pedicle showing bradycardia.
3. Myoma with torsion of the pedicle.
4. Hydrosalpinx in which the pedicle had undergone torsion.
5. Uterus removed for copious hæmorrhage containing multiple fibroids. The largest of the tumours showed surface roughening.
6. Sarcoma of the broad ligament.

B. By Dr. Nigel Stark.

1. Submucous fibroid, weighing 1 lb., removed *per vaginam*. The chief symptom was retention of urine.

2. Dr. Stark read notes of a case in which there were two hymens, two vaginal orifices, a vaginal septum, and two cervices. No uterine septum was made out, and there was only one uterine body.

II.—LARGE HYDRONEPHROSIS MISTAKEN FOR OVARIAN CYSTOMA.

By Dr. G. Balfour Marshall.

Miss B. M., aged 26, was admitted to the Glasgow Royal Infirmary on 8th October, 1904. Her docter sent the following note:—"She suffers from what I think is a multilocular cyst. It has been increasing rapidly of late, and causing a good deal of pain and discomfort. She had a child two years ago, and I detected it then, but it was much smaller, and it is only recently that it has begun to give much trouble." The following history was obtained from the patient:—

The menses first appeared at 16, were regular, of a four-week type, and lasted three or four days. Slight dysmenorrhœa had always been present on the day preceding the flow, the pain being over the sacrum and in the hypogastrium. She had had leucorrhœa for the last two years, evidently since the birth of the child about which she offered no information. Four years ago, following on a period of amenorrhœa, she was seized with a sudden attack of pain referred to the left iliac region, and accompanied by weakness, sickness, and vomiting. At this time she felt a swelling, the size of a large orange, in the left iliac region, but, according to her statement, it disappeared in a few weeks. After this she enjoyed good health. A year ago she noticed that her abdomen was distended, but it had caused no trouble till within the last two months, when it had increased rapidly in size, accompanied by considerable abdominal pain and discomfort. Three weeks before admission she had another attack of pain, similar to that of four years previously. The pain was referred to the back and left iliac region, came on suddenly with sickness and vomiting, and lasted five days. There were no urinary symptoms beyond increased frequency of micturition just before the onset of each menstrual period.

Examination: Inspection.—The abdomen was distended

to about the size of a seven months' pregnancy, the distension being more marked on the left side. Old striæ gravidarum and a linea nigra were present. *Palpation.*—A rounded cystic tumour, on which boss-like projections could be felt, filled the lower abdomen up to two fingerbreadths above the umbilicus. The right border lay just outside a perpendicular line from the middle of Poupart's ligament. Tracing the upper boundary of the tumour to the left, it crossed the middle line an inch and a half above the umbilicus, then rose up into the upper left lumbar region, where it rounded off to the left border, which lay in contact with the left abdominal wall. The lower border of the cyst could not be defined as it filled the whole pelvic brim, into which it disappeared. *Percussion* gave dulness over all this area. *Auscultation* was negative. *Mensuration by calipers.*—From symphysis pubis to upper border of cyst in middle line, $10\frac{3}{4}$ inches; breadth, $10\frac{1}{4}$ inches.

Vaginal examination.—The cervix, bilaterally split, was low down and forwards. The uterus lay retroflected and dextroverted, the fundus being in the bottom of the pouch of Douglas and to the right of the middle line. A cystic tumour of very slight mobility completely filled the whole upper strait of the pelvis, and depressed the uterus downwards and to the right. The ovaries could not be felt.

A multilocular cystoma, probably of left ovary, was diagnosed. An attempt was made to feel for a pedicle by having the tumour raised and the uterus pulled down, but the parts were too fixed to permit of a satisfactory examination by the finger. I was so certain of the diagnosis that no attempt was made *per rectum*.

Examination of the urine showed nothing abnormal. A slight œdema about both ankles, more marked on the left, was noted, no doubt due to pressure from the cyst. Otherwise the patient seemed healthy.

Laparotomy (12th October, 1904).—On sweeping the hand round the tumour to feel for a pedicle, after opening the abdomen, it was at once noted that although the cyst passed well down into the pelvis it had no connection with the pelvic organs. Further examination showed that it was retroperitoneal, and arose from the region of the left kidney, the upper border posteriorly being close to the spleen. The descending colon passed down in front of it in the left nipple line. There was now no doubt as to its being a large hydronephrosis. The dilating kidney had in its growth separated the folds of the descending mesocolon, and then pushed the internal layer with the adjacent peritoneum

before it in a direction downwards, forwards, and also to the right, till the larger half of the hydronephrosis lay free in the abdominal cavity. The projecting portion had displaced the small intestines to the right and upwards, and also lay in front of them. I split the peritoneum and shelled the cyst out of its bed till the renal vessels were exposed. The arteries and veins were separately ligated with catgut from behind and cut. The ureter was tied and cut several inches away from the kidney pelvis. None of the blood-vessels supplying the colon were injured. Fine catgut was used to suture the peritoneum and close the rent on the inner layer of the mesocolon. Finally, the peritoneal cavity was filled with saline solution, and the abdomen closed.

The patient made a good recovery, and went home in the third week. During convalescence it was difficult to estimate how much urine she passed, as some was lost during defæcation, but on the fourth, ninth, and thirteenth days, when all the urine could be collected, she excreted 33, 23, and 29 oz. respectively.

The hydronephrosis was tapped to facilitate removal, so I cannot say how much fluid it contained. The kidney was greatly distended, as shown by the description and measurements already given, while the wall seemed no thicker than is usually the case in an ovarian cystoma. As now seen in its collapsed condition, it has a distinctly kidney-like shape and shows large lobules. The wall is much thinned, while septa run inside, dividing the mass into separate cysts, and if the kidney pelvis is examined, a rough, whitish, granular, probably phosphatic calculus is found fixed in the entrance to the ureter, completely blocking it, and evidently the cause of the hydronephrosis.

Until operation revealed the mistake, I had no doubt about its being an ovarian cystoma, the pelvic situation and position in the abdomen favouring the supposition that it arose from the left ovary. Percussion on three or four separate occasions elicited no tympanitic note to reveal the presence of the colon in front. The sudden attacks of pain I considered as due to some torsion of the pedicle, and as a result expected to find peritonitic adhesions at operation.

The physician noticed the tumour for the first time two years ago, after the patient's confinement, when it was much smaller, but he regarded it as an ovarian cyst and said nothing about its position or relations at that time, which would have been a most important point in aiding a correct diagnosis. But even at that time a mistake could easily be made, as an

ovarian cystoma would be kept high in the abdomen by the puerperal uterus.

The swelling which the patient noticed four years ago may have been due to an intermittent hydronephrosis, as she stated it disappeared, and it no doubt lay higher in the abdomen than she led me to understand. The pain she suffered from then had been due to blocking of the ureter by the calculus, and as this slipped back a few weeks later, the kidney would empty itself. Sometime during her pregnancy the ureter probably became blocked again, evidently without pain, and the closed hydronephrosis was formed which was first noted after her confinement two years ago.

Such a tumour develops slowly downwards and inwards from the kidney region, with practically no symptoms beyond perhaps some uneasiness or dragging pain; and, just as with an ovarian cystoma, it may not be discovered till it is large enough to cause pressure symptoms or have attention drawn to it in virtue of its size.

The important points in the diagnosis of a closed hydronephrosis are its situation, the displacement of the colon (made more evident by inflation), and, when the condition is suspected, the segregation of the urine, as, if no urine is obtained from the side on which the tumour lies, the cyst almost certainly belongs to the kidney.

In this case, however, there was no reliable history of the position of the tumour when smaller nor of its further growth, for at first it would lie in the kidney region. The tumour, when examined in hospital, was already so large as to be fixed deep in the pelvis, and no unusual position of the colon was discovered, so a mistaken diagnosis was only too easily made.

III.—OVARIAN DERMOID, WITH TORSION OF THE PEDICLE COMPLICATING PREGNANCY.

By Dr. J. K. Kelly.

Mrs. S., aged 27, was admitted to Ward 30 of the Glasgow Royal Infirmary on 19th February last, complaining of attacks of severe abdominal pain. She had been married eight years, and had two children, the youngest about 4½ years old. At her first confinement she had chloroform, and was delivered by forceps, but the second labour was natural and easy; the puerperia in both instances normal. She had had no miscarriages. Her menstruation was every four weeks until a year ago, since which she has had intervals of six to eight weeks. The amount, which was always considerable, has not varied during

the past year, and she never had dysmenorrhœa. For the past year she has had a copious leucorrhœa.

Her last menstruation was in the beginning of November, and, from the morning sickness and the changes in her breasts, she considered herself pregnant about three and a half months. She felt quite well until, about a month before admission, she was seized one morning with severe pain in the abdomen, at first situated to the right of the umbilicus, but rapidly spreading over the whole lower abdomen. The pain was accompanied by sickness aud vomiting. When her medical attendant saw her, he found a mass in Douglas's pouch which he considered to be the retroflexed gravid uterus, and attempted to raise out of the pelvis. The first attempt was unsuccessful, but next day he succeeded in raising the mass into the abdomen, with some pain, and introduced a pessary. The patient felt quite relieved, and three weeks after the pessary was removed. Five days before admission she had a similar but more severe attack of pain, with sickness and vomiting. This time, however, there was no mass in Douglas's pouch, but there was great abdominal tenderness, with a temperature rising to over 102°, and the uterus, so far as could be made out, seemed much larger than the period of pregnancy warranted. The pain continued, but lessened in degree till admission, when the temperature was only 100·4°; next day and until operation it was normal. The pain and tenderness disappeared almost entirely and the sickness ceased.

On examination, the lower abdomen up to the umbilicus was found occupied by a rather irregular mass, which evidently consisted of two parts, a softer part to the left and a harder to the right, with a slight depression between them. Above the upper border to the left was a rather firm ridge passing in the direction of the transverse colon. Percussion was dull all over the mass. The vaginal wall was rather œdematous. The cervix presented the usual characters of pregnancy. At the first examination a firm irregular body was felt above the anterior vaginal wall, and lying mainly in front and to the right of the uterus. On examination two days after, the cervix was found to have come lower and more forward, while the irregular mass had passed more to the right and even rather behind the uterus, as if the tumour and uterus together had made a half turn from right to left.

The history and the physical signs both indicated pretty clearly that we had to deal with an ovarian cyst which had undergone a torsion of the pedicle, and this was found to be the case at the operation on 24th February. The tumour was

a large dermoid of the right ovary. The ovarian ligament and Fallopian tube were almost black, and the torsion was continued quite close to the angle of the uterus. In its removal, however, the uterus was very little disturbed. Firm omental adhesions completely covered the cyst, and the edge of the omentum was very firmly grasped in the coils of the twisted pedicle, in which the mesentery of the vermiform appendix was also involved. The left ovary and tube were examined and found normal.

On the day after the operation there was a slight reddish discharge from the vagina, but the patient continued well, and left hospital on 11th March, with every prospect of the pregnancy going on without interruption.

The tumour consists mainly of two loculi, in the lower of which part of the wall resembles the hairy scalp. This loculus had greyish-thick curdy contents mixed up with hair, while the upper thin-walled loculus contained blood-stained serous fluid. The pedicle and lower part of the tumour wall is black from effusions of blood into the tissue, and the tube is in a similar condition.

Owing to the great frequency of cystoma of the ovary, it is not surprising that it is often met with in pregnancy. In most cases, however, it is unobserved, unless it attracts attention either by its large size or by the occurrence of such an accident as happened in this case. We may say, indeed, that if torsion had not occurred it is probable that the tumour would have remained unrecognised during the pregnancy, if not even longer.

In regard to this point—the relation of ovarian cyst and pregnancy—I have looked back over our cases in Ward 30 during the last three years. These have been thirty-six in number, and of these there were four complicated with pregnancy. Of one of these I showed the specimen at our last meeting. The patient was sent into hospital with uncontrollable vomiting of pregnancy, and died on the third day after admission from intestinal hæmorrhage. The tumour was a dermoid cyst. Two of the others were dermoid, of which the present case is one. The fourth case was a large universally-adherent cyst, with which the pregnant uterus was also removed. Her former pregnancy had terminated at the full time, only fifteen months before, and the history after her delivery is interesting. The labour (28th March, 1901) had lasted twenty-four hours, was very severe, and was terminated by forceps. Three weeks after delivery (April, 1901) she was seized with a severe bearing down pain in the hypogastrium,

and she observed that the abdomen became swollen. The pain lasted several days, and then gradually died away; but the abdomen grew larger, and three months later (July, 1901) she was tapped, and a large quantity of thick greenish fluid, with foul odour, was removed. Two tubes were left in the opening for a few days, and the wound healed in about a week. After the wound closed, a similar fluid to that which had come from the abdomen came away from the vagina and rectum, and this has continued ever since, *i.e.*, for about a year. During this time she has become much thinner. At the time of admission, a small abscess had formed in the abdominal wall at the site of the tapping cicatrix, and the tumour was said to be now increasing rapidly.

In the light of what was found at the operation, we may interpret this history as indicating that at the time of her confinement she had an ovarian cyst which caused some dystocia; that, three weeks afterwards, this tumour underwent a torsion of the pedicle which set up an adherent peritonitis over the tumour; and that the adhesions were probably extended still more by the tapping.

Besides these four cases in which pregnancy was actually present at the time the patients came under observation, there were six others in which pregnancy had existed at a period when we may presume that the cyst was already present. The pregnancy in these cases preceded the admission to hospital by two and a half years, two years, fifteen months, twelve months, eleven months, and eight months respectively.

This is a very striking result, and seems to indicate very strongly that in the child-bearing period the coincidence of pregnancy and ovarian cyst is much more frequent than is usually supposed.

The treatment of these cases by abdominal section and removal of the tumour is now universally agreed upon. The chances of torsion or of some other dangerous condition occurring during pregnancy, and the still greater chances of serious complications in the puerperal period, have established the principle that an ovarian cyst discovered in the course of a pregnancy should be at once removed. And it has been found, as in this case, that ovariotomy entails very little risk of interrupting the pregnancy.

The only exception to the rule which we might make is well stated by Löhlein, who says we may adopt a waiting policy if we have a movable slow-growing tumour in a patient who has no children and who can be kept under the observation of a competent physician during her pregnancy; and in

her case the rule should be to remove the cyst early in the puerperium.

As to the prognosis of these operations, the danger does not seem to be appreciably greater than in the non-pregnant cases. The three cases operated on in our list did well, even though in one of them the adhesions around the cyst necessitated the addition of a hysterectomy to the ovariotomy.

The risk of abortion following on the operation does not seem great. In both of my cases the pregnancy was uninterrupted, but even if the abortions following on the operation should amount to Olshausen's estimate of 20 per cent, we cannot consider that as a formidable risk.

IV.—NOTES ON EIGHT INTERESTING OBSTETRICAL CASES.

By Dr. Robert Jardine.

Case I.—*Dermoid tumour obstructing labour.*

Mrs. W., vii-para, æt. 34 years, was sent to the Maternity Hospital by Dr. John Lindsay on account of a tumour obstructing labour. The labour had lasted seven hours.

On examination, we found the os was partly dilated, and the head was at the brim. In the posterior fornix there was a tumour as large as a fair sized orange. It was very tense, and had one or two projecting nodules on it, but it was not quite hard enough for a fibroid. An ovarian cyst, probably a dermoid, was diagnosed.

As the tumour was fixed in the pelvis, and could not be pushed above the brim, I decided to remove it by the abdominal route. The vaginal route might have been selected, but I decided against it, as I was quite sure there were adhesions, and, what was of more consequence, only a part of the tumour was below the brim. On opening the abdomen, I found the tumour was one of the right ovary, closely adherent to the back of the uterus low down, and with only a portion of it in the pelvic cavity. To get it up it was necessary to turn the uterus out of the abdomen, and this necessitated a long abdominal incision. The adhesions were broken down, and the tumour removed. We then returned the uterus into the abdomen, clamped the edges of the abdominal wound together, and my resident, Dr. Cameron, delivered the child with forceps in the ordinary way. The child was alive. The abdomen was then closed in layers. The patient made an uninterrupted recovery.

The main portion of the tumour was filled with pultaceous material, and there were in addition several small cysts with clear gelatinous contents.

CASE II.—*Hydrorrhœa gravidarum in a case of complete placenta prævia.*

The patient was a primipara on whom an operation for appendicitis had been performed a year or two previously. She had always suffered a good deal at her periods, and had had endometritis before her marriage. The pregnancy, her first, dated from 16th February. Her health was good until 18th July, when, while sitting in a tramcar, a heavy man was thrown by a jolt of the car into her lap. His whole weight came upon the right side of her abdomen, just over the scar of the appendix operation.

The patient suffered considerable shock, and a great deal of continuous pain attended by some uterine contractions. There was no discharge of any kind from the vagina. The pain lasted two or three days, and left the patient very nervous and much out of sorts. She went to England for a holiday, but was in bed all the time—a period of three weeks—owing to recurrence of the pain and uterine contraction, which generally occurred every second night. At each time, after several contractions, the abdomen became distended and the uterus very tense, and there was an escape of a clear fluid from the vagina. This was followed by relief. Only once during this time was the fluid coloured red. The os uteri was quite closed.

The patient returned home about the middle of August, and was well only for few a days, when pain and contractions again recurred, but not so frequently as before, nor was there much, if any, watery discharge. At this time she suffered from cystitis. The bladder was washed out and the cystitis relieved, but the frequency of micturition continued to the end of the pregnancy. About the middle of September there was a slight discharge of blood from the vagina during defæcation. There was pain and discomfort in the back before the blood came away. The patient again kept her bed, and the bleeding subsided. At the end of September she was wakened one night by pain and severe contractions of the uterus, which ceased on the expulsion of a large clot and some fluid blood.

I saw the patient in the morning, and examined her carefully under chloroform. There was very little liquor amnii in the

uterus, and the fœtus lay with its head presenting. The os was quite closed, and there was no discharge coming. There was a suspicious boggy feel in the fornices. There was a good deal of tenderness at the right side of the uterus in the region of the abdominal scar. I was unable to decide whether the case was one of accidental or unavoidable hæmorrhage. The history of the passage of a clot with immediate relief to the pain pointed rather to the former. The patient was kept in bed. There was no more bleeding until 23rd November, when another clot, but not so large as the previous one, was passed with pain.

On 26th November another large clot was passed, with very severe pain. The pain now continued until the child was delivered on the 27th. I saw her on the 25th, and found she was suffering very severely from irregular uterine contractions, but the os was not dilating. She was given full doses of morphia, and this relieved her.

On the morning of the 27th regular labour pains came on, and there was some bleeding, but not very much. I examined and found the os would admit a finger, and that I had to deal with a case of complete placenta prævia. She began to bleed very profusely, so I quickly plugged the vagina very firmly with iodoform gauze. This was left in for five hours, and when it was removed the os was dilated sufficiently to admit a Champetier de Ribe's bag. By putting traction on the bag, dilatation was nearly complete in about an hour, when I passed my hand through the placenta and turned the child. I delivered slowly in order not to injure the cervix, fully expecting the child would be dead, but to my surprise it was alive, and began to breathe without artificial respiration being necessary. The placenta and complete sac of membranes came away quickly, and there was no post-partum hæmorrhage. The patient was not collapsed, and her recovery was uninterrupted. Her temperature never rose above normal. The child, a female, was a fair size. The mother was able to nurse it.

The sac of membranes seemed to be quite complete, but, of course, there might have been a small valvular opening in it. Apart from the hydrorrhœa, there are some very interesting points in connection with the case. In the first place, the severe injury, which must have nearly burst her uterus, did not cause a miscarriage. At the first glance one would say that low implantation of the placenta would have made the patient more liable to miscarry than if the placenta had been high up; but I am inclined to think that if the placenta had

been high up it would in all probability have been crushed by direct violence, and a miscarriage have been brought about.

The passage of clots is unusual in a case of placenta prævia. The explanation of this may be due to the fact that the os was very firmly closed, and the blood was retained until it set up such strong contractions that it was finally expelled in the form of a clot, and, in the meantime, the sinuses had been sealed.

Another unusual feature is that the pregnancy went to full time. I think the small amount of liquor amnii contributed to this, because, from the time I saw the patient, *i.e.*, during the last two months of the pregnancy, the head of the fœtus was always down hard against the placenta, and the pressure would check the bleeding.

When we come to consider the hydrorrhœa, how are we to explain the escape of the fluid if it was liquor amnii, or even if it came from the glands of the decidua? The placenta completely covered the os, and how could it get out without separation of the placenta, unless it found its way through the centre of the placenta? and in that case it must have been liquor amnii. The fact that there was very little liquor amnii in the uterus towards the end of pregnancy would point to it having been that fluid. And, again, the fact that it never, except on one occasion, was stained with blood would, I think, militate against its having come from the decidual glands. On the whole, I am inclined to think it really was liquor amnii which escaped through the part of the placenta immediately over the os.

CASE III.—*Accidental hæmorrhage in a case of contracted pelvis.*

Mrs. M'C., ii-para, æt. 27; conjugate vera, $2\frac{1}{4}$ inches; full time, was admitted to the Maternity Hospital on 7th March, 1904, suffering from hæmorrhage. She was markedly rachitic. The lips and conjunctivæ were very pale. The pulse was feeble, 120 per minute. The vagina was full of clot, and the os the size of a shilling. No placenta could be felt. The abdomen was much distended. By palpation the fœtal parts could be detected, and the head was felt lying free above the brim and markedly overlapping the symphysis. The fœtal heart was heard to the left and below the umbilicus. The abdominal wall was very œdematous. After being examined, the patient became very faint and the pulse quickened. There was no further external bleeding. The patient was quickly prepared for Cæsarean section, as I felt sure this would give her a better chance than delivery by craniotomy. The operation

was performed in the usual way, and a live child weighing 7 lb. was extracted. Numerous clots were adherent to the placenta, which had been partly separated. As the uterus retracted well when it was emptied, I decided to leave it and not do a supravaginal amputation. Catgut sutures were used for the uterine incision, and both tubes were tied and cut. A quart of normal saline solution was left in the abdomen. The abdominal wall was closed in two layers. For the first two days there was some distension of the abdomen and sickness, and the temperature was 100° F. Afterwards, the temperature remained normal and the recovery was uneventful.

CASE IV.—*Concealed accidental hæmorrhage at the fifth month.*

Mrs. J., vi-para, æt. 29, was admitted to the Maternity Hospital complaining of "losing." She had borne five children, the last one six months before. Following the birth of this last child, amenorrhœa had been present for four months. She had then had what she considered an ordinary period, which had lasted for four days. A month later, the discharge had again appeared and had continued. She had passed a number of clots, but no solid substance. The discharge had not been very profuse. She thought she was having a miscarriage, but she had never felt any indications of pregnancy, such as morning sickness, &c. She had not nursed her child, as she had had no milk. Her husband had had connection with her five weeks after the previous confinement.

On examination, the patient was found to be somewhat "run down" in appearance. The abdomen was distended by a tumour of a somewhat doughy consistence, not unlike a pregnant uterus, and extending to within an inch of the umbilicus. A bimanual examination revealed that the tumour was the distended uterus. The cervix was not specially softened. Distinct pulsation could be felt in the fornices. The os was tightly closed. The fœtal parts could be felt, and there was no fœtal heart to be heard. The discharge had ceased.

The case was somewhat puzzling. Was it an ordinary five months' pregnancy with hæmorrhage, or a hydatid mole? No vesicles had been seen, but this was hardly sufficient to exclude a molar pregnancy. As there was no bleeding going on, the case was kept under observation.

A week later bleeding came on suddenly. The blood was

dark and like treacle, but there were no vesicles in it. The uterus had not increased in size.

I now determined to explore the uterus. The cervix was dilated forcibly, and I found the lower part of the uterine cavity was full of black clot. This was cleared out, and an intact ovum was found attached to the left side of the fundus. The lower edge of the placenta was partly separated. The ovum was cleared out. The fœtus appeared to be a fourth month one. The ovum occupied less than one-third of the cavity, and the remaining two-thirds was occupied by dark clot of a not very dense consistence.

The patient made a good recovery.

I have seen two other cases almost identical with this one. One of them, which is reported in full in *Clinical Obstetrics*, was complicated with an old abscess behind the cæcum.

It is puzzling to understand why the blood should have been retained in the uterus. The internal os must have been very firmly closed when the bleeding occurred, otherwise the blood would have drained away at once, as in an ordinary abortion. I think it is likely that impregnation occurred within five weeks of the previous delivery, and in that case the uterine cavity would still be large, and, probably, easily distended with blood. At such an early stage after delivery, the endometrium could not have been properly re-formed, and this would predispose to hæmorrhage.

CASE V.—*Concealed accidental hæmorrhage at full time.*

At 10 A.M. on the morning of admission to the Maternity Hospital, the patient, Mrs. S., vi-para, æt. 31, suddenly became faint and perspired freely. She had not over-exerted herself in any way. She was admitted at 3 P.M. She was very pale, with a cold clammy skin and livid lips. The pupils were dilated, and the breathing shallow and irregular. The pulse was 94, and the temperature 97° F. There was no external evidence of hæmorrhage. The abdomen was distended, rigid, and tender to pressure. The fœtal parts could not be distinctly palpated. No fœtal heart could be heard. Vaginal examination showed the os to be half dilated and the vertex presenting. There was no discharge from the uterus. The patient complained of a continuous pain in the abdomen.

As the cervix was very soft and dilatable, I decided to deliver her at once by accouchement forcé. The patient was anæsthetised, the os manually dilated, and delivery effected by version. The uterus was firmly compressed, and the placenta, which had been completely separated, and two very large clots

were expelled. One of these clots was about the size of an ordinary liver, and not unlike it in shape. There was a good deal of decidual tissue over the surface which had lain against the uterine wall. As the uterus would not retract well, it was very firmly plugged with iodoform gauze after a hot douche had been given. Two pints of saline solution were infused, and $\frac{1}{30}$ gr. strychnine was given. The pulse was scarcely perceptible. The foot of the bed was raised. The following day another saline infusion was given. The plug was left in the uterus for forty-eight hours. On its removal, there was no bleeding. The temperature ranged between 99° and 102° for about a fortnight, but there was nothing to account for it. There was also a good deal of diarrhœa. The skin was of a lemon-yellow tint and the mucous membranes blanched. I was afraid the case would end in pernicious anæmia, but under large doses of iron and arsenic the blood condition improved considerably.

In this case I was strongly tempted to do an abdominal section and remove the uterus, and I would have done so if the os had not been so much dilated and the cervix quite soft. When the oozing continued after delivery, I wished I had done the abdominal operation, but the plugging fortunately checked the oozing. I had to use a very large amount of iodoform gauze, and, as it was left in for forty-eight hours, there must have been a considerable amount of iodoform absorption, and it is just possible that this may have accounted for the persistent temperature and also for the diarrhœa from which she suffered.

CASE VI.—*Pernicious vomiting.*

Mrs. A., æt. 32, i-para, was admitted to the Maternity Hospital on 17th September, 1904, complaining of incessant vomiting of a fortnight's duration.

Previous history.—Menstruation had ceased on 20th July. Prior to that time she had always been quite regular, but at each period she had had severe pain, beginning two days before and lasting until the flow was free, when it ceased. Lately she had suffered from pain low down in the left side of the pelvis, and there had been disturbance of micturition.

A fortnight ago sickness had commenced, nausea and ordinary morning sickness at first, but for the last week the vomiting had been incessant, and she said she was vomiting the whole day long and so much at night that she could not sleep. She had never noticed any blood in the vomit.

Condition on admission.—The patient was emaciated, and

had an anxious expression, a foul breath, a furred tongue, and vomited frequently, more especially when she got sips of milk. The vomit had a bilious appearance, but there was no blood in it. Vaginal examination showed that the vulva and vagina were normal, the mucous membrane of a bluish colour. The cervix was soft and was pulled somewhat to the left side, and pointed towards the symphysis pubis. The uterus was enlarged and softened—Hegar's sign present—and was acutely anteflexed, while the lower posterior portion of it was drawn back to the rectum by the somewhat shortened posterior ligaments. There was some tenderness in these ligaments, and the patient said she had some pain at stool. The right ovary was palpable high up. The urine was highly coloured, with phosphatic deposit and crystals of urate of ammonium; no albumen, sugar, blood, or casts.

Treatment.—The patient's bowels were well washed out by a couple of high enemata. As even little sips of milk were rejected, all feeding by the mouth was stopped, and nutrient rectal enemata, alternating with meat enules, were given every four hours. Five-grain doses of oxalate of cerium were given by the mouth every four hours.

21st September.—The patient has only vomited about three times to-day, and has improved very much. Sips of iced peptonised milk were given by the mouth in addition to the rectal feeding. She occasionally vomited this milk.

She continued to improve, and by 1st October—a fortnight after admission—feeding by the mouth was commenced cautiously, and as the stomach retained the food, the enemata were stopped in a few days. By the time she left the hospital on 17th October, she was taking full diet well. She had gained considerably in weight, and had entirely lost the anxious, drawn expression.

In this case there certainly was a displacement of the uterus, which would favour the displacement theory of causation, but if that were the cause the patient certainly recovered without anything having been done to replace the uterus. If there had been no immediate improvement, I would have tried the effect of supporting the anteflexed uterine body by means of an elastic bag or plugs, but the result of our treatment was so satisfactory that I did not feel called upon to do this.

CASE VII.—*Pernicious vomiting and scurvy.*

Mrs. M'L., æt. 30, vi-para, was admitted to the Maternity Hospital on 25th December, 1904, suffering from persistent

vomiting, which she said had begun on 15th December. The patient considered herself between seven and eight months pregnant. Dr. Sinnette had seen the patient at her own home for the first time three days before admission. The vomited matter at that time was coffee-ground in character. On admission she appeared pale and emaciated. The temperature was subnormal and the pulse 116 per minute. Over the right trochanter there were two sores about the size of half a crown, and over the left gluteal region there was a large patch of ecchymosis, said to be the result of a fall a month previously. Below the left eyebrow there was a small black nodule. There was no indication of labour coming on.

The patient stated that her husband had been out of work for eight months, and that she had not been able to get proper food even when she could take it. Since the vomiting had come on she had not been able to retain anything.

Treatment.—All feeding by the mouth was stopped, and rectal enemata of peptonised milk were given four-hourly and $\frac{1}{60}$ grain strychnine hypodermically night and morning.

29th December.—Sips of hot water were given by the mouth.

2nd January, 1905.—Peptonised milk and soda water by the mouth.

3rd January.—Patient delivered herself of a living premature male child. There had been no vomiting since admission. Half an ounce of brandy was given every four hours by the mouth.

5th January.—She began to complain of great pain in the feet, especially in the left one. Within a few hours the toes and half of the left foot, both on the dorsal and plantar surfaces, became of a deep purple colour, cold to the touch, in places anæsthetic and in others hyperæsthetic. On the dorsal surface there was a large bulla extending from the base of the toes to the upper limit of the discoloration. The line of demarcation was very sharply defined both to the eye and to sensation. The right foot was dull-reddish in colour, and on the third and fourth toes one or two small dark purple patches were noticed. There was a purpuric rash on both elbows, lobe of right ear, tip of nose, and left angle of mouth, where the skin was necrosed in patches, and also on the buttocks and knees. The interior of the mouth, tongue, gums, and teeth were normal.

Professor Stockman kindly saw the case with me, and gave it as his opinion that the condition was due to scurvy. He advised giving her the juice of vegetables such as turnips, and

also raw meat juice. The condition of the patient's stomach precluded ordinary vegetable diet.

The juice of four turnips was given daily, also at intervals 3 drachm doses of raw meat juice. She began to improve at once, and was very shortly able to take full vegetable diet.

On 17th January the bulla on the left foot was opened, and a thin reddish fluid evacuated. The dead skin was removed and the part dressed with wet boracic lint.

On dismissal on 25th February, the patient had put on flesh, and her skin had a very healthy appearance. The right foot had completely recovered. The left one looked healthy, but the toes had not healed. After she went home, the last two joints of all the toes sloughed off. The bones of the second phalanges projected from the stumps, and it was necessary to remove them.

The child was very weakly and only lived a few days. It did not show any external indications of scurvy.

This is the second case of scurvy I have seen in connection with pregnancy. The other case was much less severe, but sponginess of the gums was present. The entire absence of this indication made me doubtful of the diagnosis, but Professor Stockman was quite definite that it was scurvy. The foot looked as if it were affected with gangrene, and I was afraid the toes at least would slough off, which they ultimately did. After the patient had began to get the vegetable juices the improvement was very striking.

CASE VIII.—*Rupture of the uterus.*

Mrs. B., æt. 32, vii-para. *Pelvic measurements.*—Intercristal, 9¼ inches; interspinous, 8¼ inches; external conjugate, 6 inches; diagonal conjugate, about 4 inches.

The patient was delivered by forceps in the Walcher position. The child, which weighed 7 lb., was alive, and did well. The placenta was delivered naturally, and an intra-uterine douche was given. The patient seemed quite well, but four hours after delivery she showed evidence of collapse. The lips were pale, and the pulse 100. The uterus was well retracted, and the discharge from the vagina was not more than normal. The abdomen was somewhat distended and tympanitic, and she complained of considerable pain. A $\frac{1}{30}$ grain strychnine was given.

I saw the patient for the first time about ten hours after delivery, and found her very collapsed and with a pulse of 130. The abdomen was very distended, and tender to the touch. It was very tympanitic all over, especially in the

flanks. The uterus was firmly retracted. Vaginal examination revealed nothing except a somewhat boggy feeling in the posterior fornix. A $\frac{1}{4}$ grain morphia and a $\frac{1}{60}$ grain strychnine were given, and a pint of saline was infused under the right breast. The patient passed a comfortable night, and was very well in the forenoon. The pulse-rate had fallen. About noon she became worse again, and the pulse quickened. Dr. Munro Kerr agreed with me that the abdomen ought to be opened. With his assistance I operated at 2·30 P.M., twenty-eight hours after delivery. There was a considerable amount of fluid and clotted blood in the abdominal cavity. A transverse rupture, about $1\frac{1}{4}$ inch in length, was found in the posterior wall of the uterus, just about the junction of the body and the cervix.

The uterus was amputated at the level of the rupture. The cervical stump was thoroughly cleaned, and its cavity touched with pure carbolic. It was stitched in the usual way, and the peritoneum closed over it. Most of the clot was removed from the abdominal cavity, and two pints of saline were left in it. The abdominal wound was closed with through and through sutures.

The patient stood the operation fairly well. As she had been on starvation diet for some time, rectal feeding was commenced a few hours after the operation. Vomiting was troublesome for the first day. The intestinal tract was in a very unhealthy condition, and when the bowels were moved on the third day after the operation the stench was overpowering. On the fifth day the wound was dressed, and two of the lower stitches removed as there were signs of stitch abscess. Up to this time the temperature had never exceeded 100° F. The remaining stitches were removed a few days later. About the end of the first week she began to complain of a good deal of pain in the right calf and thigh, but there was no swelling.

Up to the twelfth day the temperature was fairly satisfactory, only twice reaching 101° F. On this day she took a very severe rigor, and the temperature ran up to 106·4° F. The vagina was very thoroughly douched out, and the cavity of the cervical stump cleansed. The discharge was extremely foul. A vaginal douche was given daily after this, and the cervical cavity was on two occasions swabbed out with iodine (equal parts of the tincture and liniment). Iodoform was also freely used in the vagina. The temperature varied between 99° and 103° F., the maximum being in the evening. On the nineteenth day she had another rigor, and the temperature reached 107° F., but fell to normal in a few hours. The

discharge from the cervical stump now had no smell. Considerable quantities of iodoform were still being used in the vagina, and the temperature remained varying between 99° and 103° for the next five days. The use of iodoform was now stopped entirely. At this time the urine gave a very marked iodine reaction. After this the temperature gradually fell, and lost the intermittent character. Three days after the iodoform was stopped the urine failed to give the iodine reaction.

Throughout, the patient was very freely stimulated with brandy and strychnine, and large doses of salol were administered in order to try and disinfect the intestine. It was about a fortnight before the fæces lost their foul odour.

The rupture was caused by pressure between the promontory and the head. The pelvis was a generally contracted one. Two of the patient's previous deliveries had been by forceps. I was not present at the delivery, but I believe considerable force was required; however, it could not have been so very great, as the child's skull was not fractured, although it was indented. There was no bleeding, and when the intra-uterine douche was given the fluid returned quite freely, and there was nothing observed of a suspicious nature. In *Clinical Obstetrics* I have published a similar case, with a drawing. The case was really one of Dr. Black's. The pelvis was a flat, rickety one, and the delivery was done with antero-posterior forceps. The child's head was badly crushed. The patient died in a few minutes, from shock apparently, as there was no bleeding, either external or internal.

I have also seen another case of a similar rupture during a difficult craniotomy, but it did not extend beyond the muscular layer. The resident told me that he thought the intra-uterine glass-nozzle was grating against the promontory. I examined at once, and found a transverse partial rupture just about the junction of the cervix with the uterine body. The peritoneal cavity had not been opened into. There was no bleeding, so I did not plug. The patient made a good recovery, and about ten days later I found the rent was healed.

Considering the amount of pressure which the parts must be subjected to in difficult forceps deliveries and craniotomies, it is somewhat surprising that rupture does not frequently occur.

The diagnosis of the case was very difficult. The condition of the patient pointed to a lesion of some kind, but there was no bleeding from the vagina beyond a small amount of ordinary discharge. In fact, it was less than usual. The tympanitic condition of the abdomen was also very misleading.

Percussion gave absolutely no evidence of any fluid blood or clot in the peritoneal cavity, and yet there was a considerable amount of both. The clot was entangled in the omentum, and I left a good deal of it behind, as it seemed perfectly aseptic. An exploration of the uterine cavity would have settled the point of where the lesion was, but this could only have been done under chloroform.

The exceedingly unhealthy condition of the patient's alimentary tract certainly predisposed to septic infection, and I believe the vagina was infected in that way. Latterly I think the temperature was kept up by iodoform absorption, as there was a distinct immediate improvement when the iodoform was stopped.

Dr. M'Bryde spoke of a case in which he had performed Cæsarean section for obstruction to labour caused by a dermoid tumour of the ovary. The tumour was driven down into the pelvis by the advancing head, and could only be reached after the uterus was emptied.

The *President* said he had no experience of ovarian cyst complicating labour, but he considered that the clinical histories of these cases clearly indicated that the proper treatment was removal at the time. With the present safety of ovariotomy, it was better not to leave the tumour to the chances of a puerperal inflammation.

MEETING VII.—26TH APRIL, 1905.

The President, DR. J. K. KELLY, *in the Chair.*

I.—SPECIMENS.

A. BY DR. J. M. MUNRO KERR.

1. *An ovarian cyst whose pedicle had become twisted five weeks before admission to the Western Infirmary.*—Mrs. W., aged 54, was sent to me by Dr. Gilmour, Duntocher, on account of a painful swelling in the abdomen of five weeks' duration. The patient had reached the menopause five years before. Five weeks before she came to me she was seized

with sudden abdominal pain. It was situated in the right ovarian region specially, but extended over the whole abdomen. It could only be controlled by the free exhibition of morphia. As the pain subsided a swelling about the size of a fœtal head could be made out. The patient was not aware of any swelling previously. On examination I found a round swelling, about the size of a fœtal head, situated about the middle part of the lower abdomen. The uterus could be differentiated from the growth, but, owing to the tenderness over the tumour, the exact connection of it with the uterus could not be defined. The diagnosis was made of an ovarian tumour with a twisted pedicle. An abdominal section was made a few days later in the Western Infirmary, and the diagnosis was confirmed. The tumour involved the right ovary, and was one complete twist from right to left. It was firmly adherent to the surrounding bowels. The patient has made a satisfactory recovery, although the abdominal wound suppurated in nearly its whole extent. She is still in hospital.

2. *A myoma of the uterus which began to give trouble at the time of the menopause.*—Mrs. R., aged 44, came to me at the Dispensary of the Western Infirmary on account of an abdominal swelling and profuse menstrual discharges. She stated that she had had three children at full time and three miscarriages. There had been excessive bleeding for three months, when the tumour was first appreciated. Prior to that time there were evidences of the onset of the menopause, with flushings and absence of menstruation for sometimes as long as three months. On examination a hard swelling, about the size of a child's head, and closely connected with the uterus, was readily made out. The tumour was quite movable, and the diagnosis of a uterine fibroid was made. She was operated upon three days after admission, when the uterus and tumour were removed by supravaginal amputation. The patient's recovery has been interrupted. The stitches were taken out on the fourteenth day, and the wound was found perfectly healed. She leaves hospital shortly.

3. *Myomatous tumour of the uterus removed by supravaginal hysterectomy.*—The interesting feature of this case was the extremely rapid growth of the tumour. The patient, a nullipara, 30 years of age, was sent to me by Dr. ——, of Dennistoun. So rapid was the growth of the tumour that we were at first inclined to look upon it as possibly a pregnancy in which menstruation was occurring regularly. In the six

weeks before operation, however, this rapid growth ceased, and we then came to the conclusion that we had to deal with a fibroid tumour. The patient was operated upon in the St. Elizabeth Nursing Home three weeks ago. There was no difficulty in the operation, and the patient has made a perfect recovery.

4. *Myomatous tumour of the uterus, first discoverable during pregnancy, and which has not diminished in size since abortion occurred seven months ago.*—This patient, aged 25, was sent to me by Dr. ——. Nine months ago she had a miscarriage, when the tumour was first recognised. Since then I have seen her from time to time and have found no diminution in the bulk of the tumour. As the bleeding was so excessive I advised removal of it. This was done ten days ago in the St. Elizabeth Nursing Home. The patient so far has progressed most satisfactorily.

B. By Dr. Scott M'Gregor.

Dilated Fallopian tube filled with thick grumous material.

C. By Dr. J. K. Kelly.

1. A uterus containing a great many fibroid tumours.
2. Pyosalpinx from a case of tuberculous peritonitis; the rapid onset suggested a ruptured extra-uterine pregnancy.

D. By Dr. G. Balfour Marshall.

Submucous sausage-shaped fibroid expelled from the interior of the uterus after panhysterectomy. The uterus contained other fibroids.

II.—SOME COMPLICATIONS AND DEGENERATIONS OF UTERINE FIBROMYOMATA.

By Dr. S. J. M. Cameron.

1. Chart with ages of 100 patients suffering from fibroids, and the number of children borne by the married patients.
2. Series of slides showing two polypi projecting through the cervix at the same time, effect of polypi on the vagina, polypus producing inversion of the uterus, &c.
3. Series of slides illustrating the pathological characters of

a primary cancer of the Fallopian tube complicating a fibromyomatous tumour. The changes in the unaffected part of the wall covering the tumour had microscopical characters resembling those met with in hydrosalpinx.

4. Series of slides illustrating sarcomatous change in a fibromyomatous tumour. Some of the slides showed well-marked fusiform elements and a few giant cells. In others the cells could be seen invading altered fibromyomatous structures.

5. Series of slides showing carcinomatous invasion of the body wall of the uterus, which contained many small fibromyomatous tumours. Inverting and everting types of growths were seen in the acini.

6. Series of slides were shown illustrating the changes in the uterine and ovarian arteries. Their importance in the production of the souffle was pointed out.

7. A very large series of slides was shown to demonstrate the hystogenesis of cystic degeneration in fibroids. Mast cells were noted, and occasionally eosinophiles. A curious cystic degeneration, limited to the capsule of the tumour, was exhibited, and it was demonstrated that peripheral calcification of the tumour, followed by perforation of the uterine wall, might result from this degeneration.

8. Series of slides demonstrating myomatous change in fibroids.

9. Series of slides to show the effects of acute torsion of a fibroid pedicle on the muscle substance, the connective tissue, and the blood-vessels in the tumour itself and in its pedicle.

10. Slide showing chronic torsion of the pedicle of a fibroid, with an omental adhesion to the calcified fibroid. The various sources of danger in such a condition were described.

11. Series of slides showing a fibromyomatous polypus complicating a three months' pregnancy. The tumour must have been present in the vagina for some time, as was shown by the existence of a stratified squamous epithelioma at its most dependent part. Higher up, however, the mucous membrane had been completely changed into decidua.

12. Series of slides to show a localised telangiectatic condition of a fibroid, with tuberculous disease of the ovaries and tubes.

13. Many slides of adenomyomata were shown. Most occurred in the uterine wall. One had its origin in the cervix. Some showed cystic distension in the gland spaces, while one was lined by ciliated epithelium. One had undergone malignant degeneration (adenocarcinoma).

14. A large series of slides to show the peculiarities of ovarian fibroids, and in one the effect of acute torsion of its pedicle on the tumour substance was noted.

MEETING VIII.—24TH MAY, 1905.

The President, DR. J. K. KELLY, *in the Chair.*

I.—SPECIMENS.

A. BY DR. JOHN EDGAR.

1. *Tubercular uterus and double pyosalpinx with the vermiform appendix.*—The right pyosalpinx, which was of about the size of an orange, had been opened previously *per vaginam.* Partly owing to this, and partly owing to the density of the adhesions, the operation was extremely difficult. The vermiform appendix was firmly attached to the right tube, and was accordingly removed. After separating the adhesions above, owing to the impossibility of isolating the appendages, the uterus was split in the middle line down as far as the internal os, and each half was then removed, along with its corresponding tube and ovary. Finally the cervix was removed and free drainage established *per vaginam.* Patient made an excellent recovery.

2. *Round-celled sarcoma of right ovary complicating pregnancy at the third month.*—There were 12½ pints of free ascitic fluid in the abdominal cavity. The tumour was so friable that it tore across while delivering it through the abdominal incision. The other ovary was small, but, as it did not appear quite healthy, it was thought advisable to remove it also. Patient left hospital three weeks after the operation. She aborted a few days after her return home.

3. *Malignant multilocular cystadenoma of right ovary and dermoid cyst of left ovary removed from the same patient.*—These were moderately small and occupied the pouch of Douglas. They pressed against the rectum, with the result that defæcation was rendered extremely difficult, so difficult that patient stated that at times she was seized with hysterical

attacks while on the stool. She was treated a year ago for neurasthenia by the late Dr. R. S. Thomson. Patient made a good recovery and has since been free from her rectal troubles.

B. By Dr. J. Nigel Stark.

1. Ruptured tubal pregnancy, showing the placenta and cord in the tube, but no fœtus.

2. Small multilocular ovarian cyst.

3. *Dermoid tumour of the ovary, containing no elements except cholesterine crystals.*—The interest in this case lies chiefly in the contents of the ovarian dermoid tumour which I removed from the patient's body. She was a woman of 27 years of age, and was admitted on 25th February of this year to the Samaritan Hospital, complaining of severe dysmenorrhœa of about eight years' duration. Menstruation took place for the first time when she was 14 years old, but did not recur till her seventeenth year, since which time it has usually been regular, of the twenty-eight day type, and lasting two days. It has always been accompanied by great pain, so severe that for the last five years it has caused fainting and she has always been obliged to go to bed. Seven months previously the cervix was dilated, but so far from relieving the pain it has aggravated it, and extreme intermenstrual pain in the back and both iliac regions, gnawing in character, has been added. The discharge is rather scanty and very pale. She had been married a year, but had never been pregnant. In the left fornix a tumour, apparently ovarian, could be felt, along with a sausage-shaped swelling more in Douglas' pouch. I operated on 2nd March, and removed the tumour which I show, the sausage-shaped swelling being a parovarian cyst. The patient made an uneventful recovery, and went home on 25th March.

The following is the report on the specimen made by Dr. Galt, pathologist to the hospital:—

"There is a parovarian cyst stretching to some degree the normal Fallopian tube. This cyst is roughly sausage-shaped, one end projecting slightly beyond the fimbriated extremity of the tube, the cyst extending for 3 inches almost parallel with the Fallopian tube and partly beneath it. The average diameter of the cyst is a little over an inch. The contents are simply clear, light amber-coloured, serous fluid, without corpuscular or other formed elements.

"Beneath the parovarian cyst, and completely separated

from it by about 2 inches of the broad ligament, is a cystic tumour about the size and shape of an orange. This cyst occupies the position of the ovary, and apparently represents it. On the outside the wall is smooth and regular, with no trace of adhesion at any part. On opening the cyst it is found to be unilocular, and to contain homogeneous contents in the form of very tenacious, almost gelatinous, clear mucus, scattered uniformly throughout which are myriads of scintillating particles of a whitish colour and almost metallic lustre. The internal wall of the cyst is fairly smooth, but contains hard masses, irregular in shape and size, at various parts; at other parts the wall is covered with dark brown material, very slightly adherent to the cyst wall.

"Microscopic examination of the cyst contents shows an almost 'pure culture' of cholesterine, the crystals being very large, perfect in shape (the gnomon being in every case mathematically exact), and absolutely colourless. The only other elements present are irregular masses of tessellated epithelium, showing more or less fatty degeneration.

Microscopic examination of the cyst wall shows very little but dense fibrous tissue, with quite inconsiderable cellular composition. The hard portions previously referred to are found to consist of dense calcareous plates; true bone formation is not observed.

"No trace of ovarian tissue proper is present at any part of the cyst.

"Out of twenty-three dermoid cysts examined during the past eight years at the Glasgow Samaritan Hospital, this specimen is unique in showing practically nothing but cholesterine in the contents."

Mr. Bland Sutton, one of our leading authorities on dermoid tumours, tells me that he has not come across a case presenting exactly the same features as this one.

C. By Dr. J. M. Munro Kerr.

1. Ovarian cyst with torsion of the pedicle.
2. Ectopic pregnancy.

D. By Dr. S. J. M. Cameron.

1. Fibrocystic tumour of the uterus removed from a patient, æt. 53.
2. Myxofibroma of the uterus.

II.—CASE OF CHRONIC INVERSION OF THE UTERUS RESULTING FROM CARCINOMA.

By Dr. J. Nigel Stark.

Acute inversion of the uterus occuring during delivery or in the puerperium is a rare condition. There was only 1 case in 190,800 deliveries in the Rotunda Hospital; Denham records 1 in 100,000, and Carl Braun none in 250,000. It usually occurs during the third stage of labour, and is produced, primarily, by inertia of the uterus, and, secondarily, by traction on the cord, by injudicious and unskilful pressure from above, or by unnecessary or sudden bearing-down efforts. Pinard[1] relates a very unusual case which occurred three days after a normal labour, during the straining of defæcation. Ané and Baudelocque each reported similar cases.

Although chronic inversion is sometimes said to result in certain cases from these acute causes, that is not a very correct method of speaking, as a chronic disease ought to be chronic in its origin; still, a few cases of undetected and non-fatal acute puerperal inversion may, perhaps, in a few years show the symptoms and signs of an inversion now chronic. But true chronic cases are, strictly speaking, those which are developed slowly and gradually in the non-puerperal uterus by the growth of tumours in its interior, along with paralysis of one portion of the uterine wall and increased activity of another part. It could not possibly occur in a healthy, unimpregnated uterus, as no fibres would bulge inwards however vigorous the contraction; in fact, under such conditions the straighter would the uterine walls become.

I am aware that cases have been reported of spontaneous inversion in the virgin uterus containing no foreign body, and that such cases have been repeated in some recent works on gynæcology, but so far as I know they all date from a considerably remote period, and most probably were in reality cases of ordinary submucous fibroids mistaken for inversion. E. C. Dudley says that "the effort has been made to reduce a supposedly inverted uterus when the extending mass was a myoma. The author personally recalls a case at the Women's Hospital in the city of New York, upon which an attempt was persistently made by one of the most eminent members of the visiting staff of that institution."

Chronic inversion of the uterus is sufficiently rare to

[1] *Ann. de Gyn. et Obstet.*, October, 1901.

justify publication of a case, especially as there is one point of particular interest.

The patient, 57 years of age, had been married thirty-five years, and had given birth to five children, the last twenty-two years before I saw her, and had had one miscarriage at the third month three years afterwards. All the labours had been normal in every respect. She had always considered herself to be a perfectly healthy woman, and at about her forty-sixth year the menopause occurred. After that time she was somewhat troubled with constipation and piles, and gradually became stouter, but felt well, and never had either menstrual or intermenstrual discharge until about 7th November last (1904), when she noticed slight bleeding from the vagina. As it continued, she rested in bed for a week. This had a good effect, but when she arose the bleeding recommenced, this time more profusely, and, in addition, some "fleshy" mass was passed. The physician who saw her said that this was a polypus, advised continued rest in bed, and administered drugs. In spite of these measures the hæmorrhage persisted, and did so for nearly three months, after which time I saw her. She had spent these months in bed, her blood draining away day after day. There had never been "floodings," but a steady flow was maintained, and the blood had a heavy disagreeable odour. Pain never caused trouble, except on four occasions on which there was retention of urine, and then it was very severe and bearing-down in character. Relief was given by the use of the catheter.

Upon examination on 29th January, 1905, the patient was found to be stout, but very flabby, and was a picture of profound anæmia. The skin and mucous membranes were deathly pale. She complained of breathlessness and complete and painful weakness. The pulse-rate was about 90, and the arteries were compressible. The examination of the heart discovered a ventricular systolic murmur at the apex, with accentuation of the second sound at the aortic and pulmonic areas. The abdominal wall was very stout, and on palpating the lower abdomen she complained of severe pain. Vaginal examination disclosed the presence of a sloughing, greenish mass which could be seen at the entrance. It was impossible to explore in any other manner, as the whole of the vaginal cavity was completely filled and blocked up.

Two days later she was anæsthetised, and the œdematous, pulpy mass (which was sloughing at its lower part) was removed in pieces by scissors until more thorough exploration

was possible, when it was found that the vagina was distended not only by the tumour, but also by the inverted uterus, to whose fundus the former was attached.

There could be no mistake as to the diagnosis, since the uterine openings of the Fallopian tubes were plainly visible. The tumour was completely removed, and the edges of the raw surface—about 2 inches long and 1 inch broad—left on the uterine wall were stitched over with catgut. Hæmorrhage was very profuse. More thorough examination then revealed that the inversion was nearly complete. The cervix had almost disappeared, and the sound could pass beyond and within it only about an eighth of an inch. Bimanually, the fundus of the uterus was felt to be absent from its normal position, but the thickness of the abdominal walls and the completeness of the inversion prevented the typical cup-shaped depression from being recognised. No attempt at reposition was made, but the uterus was douched with hot water, and the vagina was packed tightly with iodoform gauze.

The tumour was found to weigh three-quarters of a pound (12 ounces), but must originally have been fully a pound in weight. For a week the vagina was douched and packed daily, and then a fruitless attempt was made to reduce the inversion manually. The surface from which the tumour had been removed was completely healed, but we did not feel justified in using much force, as our hopes of permanently relieving the patient were disappointed by the report given by Dr. Hugh Galt, who had made an examination of the tumour. It was to the effect that it was "undoubtedly a malignant tumour. It is composed chiefly of large epithelioid cells, which are arranged irregularly, and it is permeated all through by a dense infiltration of small round cells, amongst which the larger cells are almost uniformly mixed. These small cells are probably inflammatory in origin. There is no stroma to be seen, but at some points the cells seem to be undergoing necrosis—they do not stain, and nuclei are not visible. There is no trace of fibromatous, muscular, or glandular structures at any part. The tumour is carcinomatous, and of an endothelial type."

Clearly, the only treatment which could be adopted was hysterectomy, but the patient's condition was extremely bad, and it was not possible to believe that she could survive the shock of such an operation. She did not rally nor improve in strength in spite of nourishment and stimulants, and remaining in a state of lethargic weakness and collapse, she died on 2nd March.

Chronic inversion is most usually produced by a submucous fibroid tumour attached to the fundus of the uterus. In most cases such a tumour becomes pedunculated, and usually no inversion occurs; but when it remains sessile it slowly drags down the whole of the uterine wall to which it is attached, including the peritoneum, the active contractions of the remainder of the uterus set up by the efforts to expel the tumour completing the process of inversion. Matthews Duncan, in his *Clinical Lectures*, thus describes the process:— "It is not the polypoid form which produces the effect, but a sessile or necked tumour, the uterus seizing a tumour as it seizes a child, and pushing it out." It is a wise rule to take for granted that in the case of every submucous fibroid inversion does exist unless it can be disproved by careful examination, as cases have been recorded in which, partial inversion existing without the operator's knowledge, the uterine wall has been cut, the peritoneal cavity opened, and fatal hæmorrhage has ensued.

It is a matter of great regret that in this case the condition was unrecognised, and the bleeding allowed to continue until there was no possibility of radical operation being performed.

The chief danger of chronic inversion is hæmorrhage, which is frequently most uncontrollable, and leads to death from exhaustion. When to the inversion there is added either a myoma or a malignant tumour, this danger is all the greater. The necessity for correct diagnosis is therefore apparent, and the conditions from which chronic inversion must be distinguished are a polypus descended into the vagina, polypus with inversion, prolapse, and, as in this case, inversion with a polypoid tumour. An examination under an anæsthetic permits a thorough investigation to be made, and a correct diagnosis formed. The treatment thereafter will depend upon the condition discovered, but this aspect of the subject I shall not now discuss.

A malignant tumour attached to the fundus uteri is one of the most unusual causes of inversion, and in his large experience Howard Kelly has seen only one case, and the tumour was a spindle-celled sarcoma. There had been merely a blood-stained discharge, with occasional hæmorrhages, for a year, reposition was spontaneous soon after the tumour was removed, and hysterectomy was performed a week later.

Most text-books omit any reference to malignant growths as being the cause of inversion, this fact showing the rarity of their co-existence. When mention is made, it is said that

undoubtedly the usual form which the malignancy assumes in such cases is that of sarcoma, and the inversion has been attributed to the paralysis of the muscular wall through the infiltration of the sarcomatous cells as well as to the unusual ease with which the cervix dilates, as has been observed in some instances.

Carcinoma, however, is practically unknown as a cause of inversion, and in its occurrence in this case lies one of the principal points of interest. Lawson Tait reported a case "in which a large, soft, villous polypus was found occupying the vagina in a woman aged 52. This was removed by an écraseur, when it was seen to be the inverted uterus covered with a layer of soft, villous epithelium." In spite of this accidental amputation, recovery took place. Tait further says—"The growth of the villous epithelium had probably caused inversion of the uterus by dilating the cervix."

It has to be noted that no microscopical examination of the growth seems to have been made, and that the diagnosis even of malignancy, not to speak of that of cancer, was decided by the naked eye appearances, which are frequently so misleading.

Hart and Barbour state that carcinoma rarely produces inversion, and do not relate any case as having occurred in their conjoint experiences. I have not read of an authentic case so far, and as the one I record is beyond question or cavil, this is one of my reasons for reporting it.

The distinctive and special appearances microscopically of round-celled or spindle-celled sarcoma are quite characteristic, and the pathological report affords conclusive evidence that the tumour did not belong to either variety. Furthermore, it was not a mixed tumour containing giant cells, as the large epitheliod cells present were quite distinguishable from giant cells. The only other growth from which it requires to be differentiated is that known as Grawitz's tumour, but the arrangement of cells in Grawitz's tumour is very different. They are in columns, having a thin stroma between them, arranged, in fact, in a manner similar to that of the large cells of the suprarenal capsule. There is also a well-marked vascular system containing blood-vessels and blood-spaces—angiomatous in type—in Grawitz's tumour, while there is no glandular nor muscular tissue, and the small-celled elements are, comparatively speaking, slight. In the case described by me there was no stroma, nor were there blood-vessels nor glands; there was absolute irregularity of cells, and the small-celled element was very pronounced. The points of difference

between it and Grawitz's tumour are, therefore, numerous and well marked, and the evidence conclusively proves that it was a carcinoma.

Dr. W. L. Reid and *Dr. J. K. Kelly* said that they had no experience of malignant disease causing inversion of the uterus.

Dr. Munro Kerr asked if the inversion had not been present before the malignant disease began.

Dr. Stark replied.

III.—CASE OF EXTRA-UTERINE PREGNANCY AT FULL TERM.

By Dr. John Edgar.

Mrs. M., aged 33, was admitted into the Samaritan Hospital on 20th January of this year, complaining of constant abdominal pain, and of a discharge of blood and grumous material from the bowel. Married eight years ago; one child seven years ago at full term; labour easy. Menstruation has always been normal; last period in the first week of April, 1904. Copious leucorrhœa during the last six or seven months. Micturition frequent; urine very dark in colour during the past three or four weeks; specific gravity, 1030; trace of albumen, no blood nor sugar. Previous health fairly good.

History of present illness.—Shortly after her last period in April, 1904, patient suffered from morning sickness and a feeling of weight and fulness in the breasts. In May she complained of pain in the lower part of the abdomen, constant and dragging in character. At the end of this month, after whitewashing a ceiling, she was suddenly seized with severe, sharp pain "in both passages," and with continual retching and vomiting. She went to bed, and says that "the pain was so severe that she went from one faint into another." The acute symptoms continued for four hours, but she had to stay in bed for a week. A week later, while going about, she had another attack of a similar nature. There was no vaginal discharge on either occasion. During the second attack she sent for a doctor, who diagnosed extra-uterine pregnancy, but found patient so ill that he did not think she would recover.

After this she had two other attacks of pain, with only a few days' interval, and then for the first time she noticed a tender lump in the abdomen. At the end of the third month she recovered sufficiently to be able to go to Lenzie Home for

Convalescents, where she remained for a fortnight. Soon after her return home, however, she had another, and subsequently still other attacks similar to those which she had had previously.

About Christmas, nine months after her last menstrual period, she was seized with severe labour-like pains, which continued three or four days. Previous to this she thought she felt life, but the movements did not recur after Christmas.

She was confined to bed for five weeks before her admission, and during that time she lost flesh rapidly and became daily weaker. Her medical attendant reported that a few days before admission the internal os uteri was sufficiently dilated to admit a finger. The uterus was explored digitally, and found to be empty.

Condition on admission.—Patient looks very ill; much emaciated; eyes hollow and sunken; face ashen-grey, with a flush over each malar eminence; breath foul; disagreeable odour from the whole body; lips and teeth covered with sordes. Patient lies on her back with her legs drawn up. The respirations are short and panting, numbering 28 per minute. The pulse is rapid, very irregular, and thready, numbering 120 per minute. Temperature, 100° F.

Examination of abdomen.—Distended to what appears like a seven and a half months' pregnancy; the highest point midway between umbilicus and xiphoid. The note over the whole area is dull on percussion. There is great tenderness on palpation over the whole abdomen, and coarse crepitation is distinctly felt and heard (due to inflammatory adhesions). The fœtal limbs are easily palpable.

Heart-sounds rapid and irregular, but pure. Lungs normal.

Examination per vaginam.—Uterine sound passes 3½ inches into the uterus, which is retroverted and retroposed. In front of it a globular mass is felt. (During the operation this was found to be the child's breech.)

Operation (23rd January, 1905).—The abdomen was opened in the middle line between the umbilicus and the pubis. The gestation-sac was found to be adherent to the abdominal wall. Whenever it was opened, an extremely fœtid, dark, grumous fluid escaped, and the child's arm presented at the incision. On passing the hand into the cavity, the child was found to be lying with its breech in the pelvic brim. It was extracted feet first. It was very much macerated and decomposed. The brain-tissue was liquefied, and the head flattened out laterally to such a degree that the upper edge of one parietal bone projected an inch and a half above that of the other.

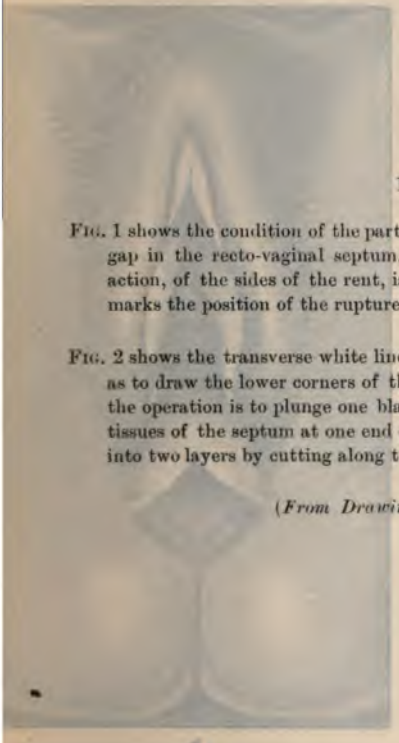
The funis, which had shrunken considerably, was cut without ligaturing it, and then the soft, black, decomposed placenta was peeled off. The relationship of the uterus and appendages could not be made out, nor could the rupture of the bowel be discovered. The cavity was washed and sponged out with saline solution, and pieces of membrane and hairy scalp came away. It was then packed with iodoform gauze. Two silk-worm-gut sutures were passed through the abdominal wall to bring the upper angle of the wound together; a third suture was placed at the lower end of the abdominal incision. A pint of saline solution was then administered subcutaneously.

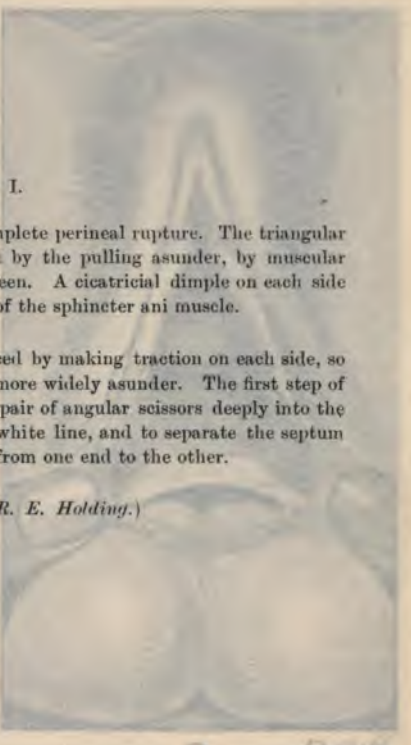
After-progress.—For the first twelve days or so after the operation patient remained in a critical condition. The morning after the operation, formed fæces with a foul odour were found in the wound cavity. The gauze was removed and the cavity again washed out and repacked. Next morning a very large quantity of fæcal matter was again present in the cavity. An enema of olive oil, half a pint, appeared immediately at the abdominal wound; this, along with the fact that the fæces were formed, showed that the rupture was in the sigmoid flexure. Patient had $\frac{1}{60}$ grain of strychnine four-hourly for the first three days, along with a drachm of whisky every hour. On the ninth day after the operation the temperature rose to 103·6° F. Pulse was 124 and very intermittent and soft; but after this the temperature came gradually down until by the twentieth day it was normal, and remained so during her residence in hospital. The cavity gradually closed up from below, but fæces were passed regularly by the wound, except on two occasions when a small quantity was passed by the anus. The rectum was washed out frequently with saline solution, and on one or two occasions hard scybalous masses were removed by the finger.

A loop of bowel gradually projected at the upper angle of the wound and became adherent to the lower edge of the incision. It was found that the rupture was present in this loop. It was just like the opening of a colotomy wound. Saline given *per rectum* returned through the opening in the right side of the bowel, while the fæces passed out through the opening on the left side. Patient's general condition improved very much. During the last week of her residence, a colotomy pad having been obtained for her, she was able to walk about the ward She returned home on 31st March, seventy-two days after admission, and has kept well since.

Dr. Oliphant asked if the crepitation was due to emphysema.

PLATE I.





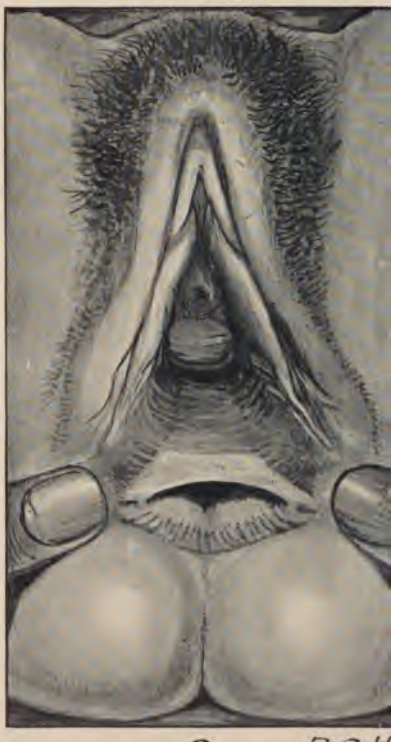
1. 2.

FIG. 1 shows the condition of the parts in complete perineal rupture. The triangular gap in the recto-vaginal septum, caused by the pulling asunder, by muscular action, of the sides of the rent, is well seen. A cicatricial dimple on each side marks the position of the ruptured ends of the sphincter ani muscle.

FIG. 2 shows the transverse white line produced by making traction on each side, so as to draw the lower corners of the gap more widely asunder. The first step of the operation is to plunge one blade of a pair of angular scissors deeply into the tissues of the septum at one end of this white line, and to separate the septum into two layers by cutting along the line from one end to the other.

(*From Drawings by R. E. Holding.*)

1.



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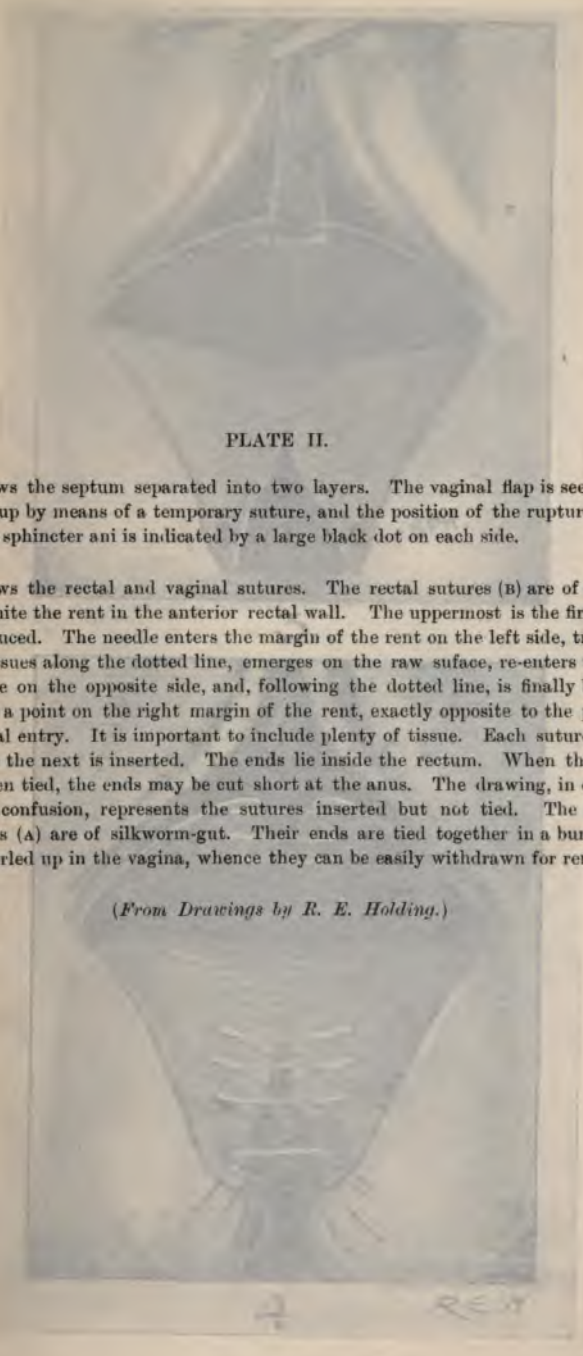
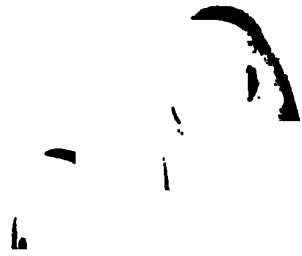


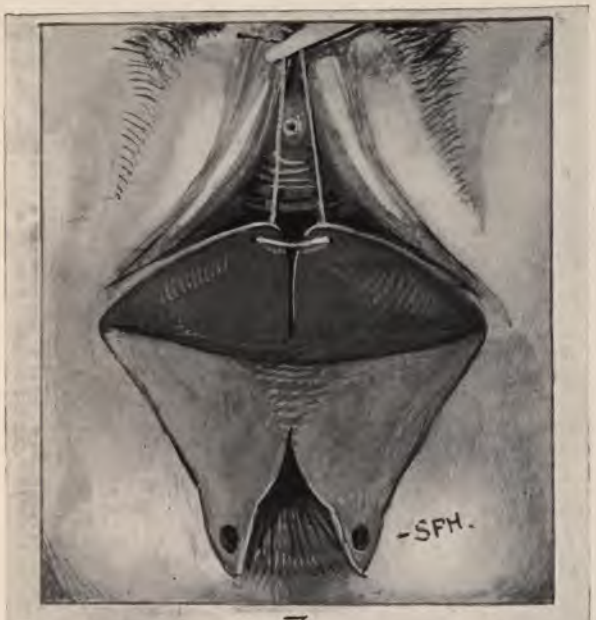
PLATE II.

FIG. 3 shows the septum separated into two layers. The vaginal flap is seen to be lifted up by means of a temporary suture, and the position of the ruptured ends of the sphincter ani is indicated by a large black dot on each side.

FIG. 4 shows the rectal and vaginal sutures. The rectal sutures (B) are of catgut, and unite the rent in the anterior rectal wall. The uppermost is the first to be introduced. The needle enters the margin of the rent on the left side, traverses the tissues along the dotted line, emerges on the raw suface, re-enters the raw surface on the opposite side, and, following the dotted line, is finally brought out at a point on the right margin of the rent, exactly opposite to the point of original entry. It is important to include plenty of tissue. Each suture is tied before the next is inserted. The ends lie inside the rectum. When they have all been tied, the ends may be cut short at the anus. The drawing, in order to avoid confusion, represents the sutures inserted but not tied. The vaginal sutures (A) are of silkworm-gut. Their ends are tied together in a bunch and left curled up in the vagina, whence they can be easily withdrawn for removal.

(*From Drawings by R. E. Holding.*)





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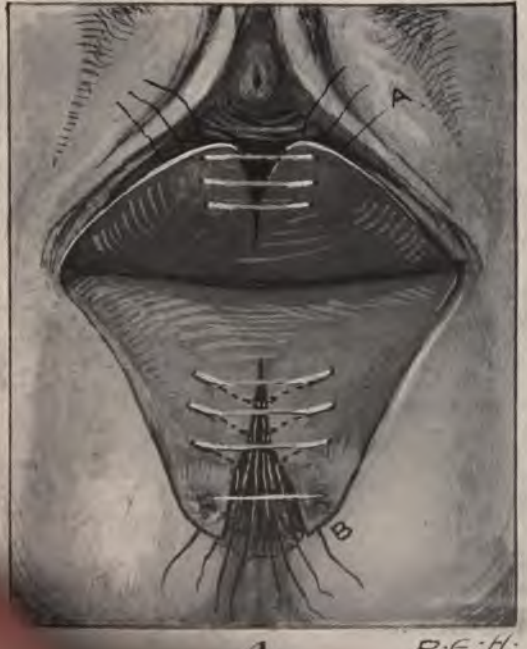
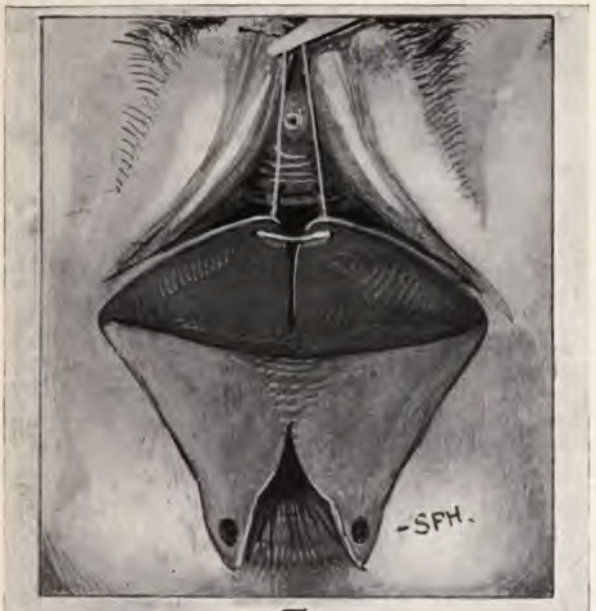


4 R·E·H·

PLATE II.

Fig. 1 shows the septum separated into two layers. The vaginal flap is seen to be lifted up by means of a temporary suture, and the position of the ruptured ends of the sphincter ani is indicated by a large black dot on each side.

Fig. 2 shows the rectal and vaginal mucosæ. The rectal mucous layer of catgut, and unite the rent in the anterior rectal wall. The oppermost is the first to be introduced. The needle enters the margin of the rent on the left side, traverses the tissues along the dotted line, emerges on the mucous surface on the opposite side, and, following the dotted line, is finally inserted on at a point on the right margin of the rent, exactly opposite to the point of original entry. It is important to observe this order of means. Each suture is tied before the next is inserted. The ends lie inside the rectum. When they, too, all been tied, the ends may be cut short at the knots. The bowels, in order to avoid confusion, represents the sutures inserted but not tied. The vaginal sutures (A) are of silkworm gut. These ends are tied together in a bunch and left curled up in the vagina, whence they can be easily withdrawn in a week



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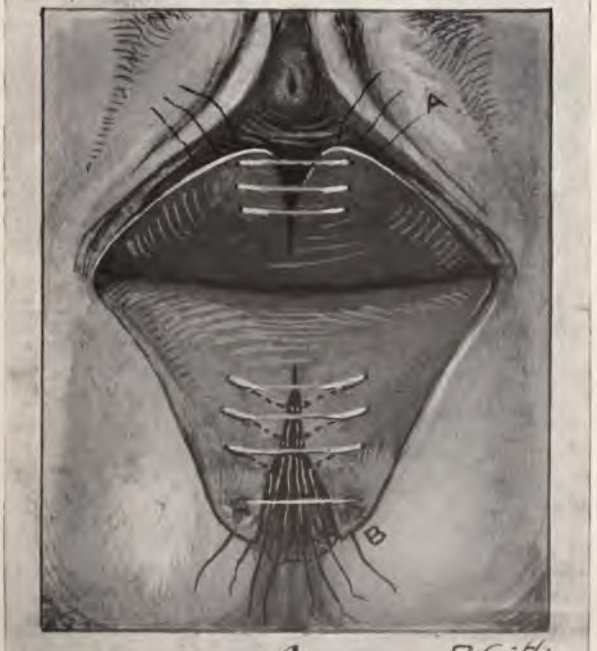

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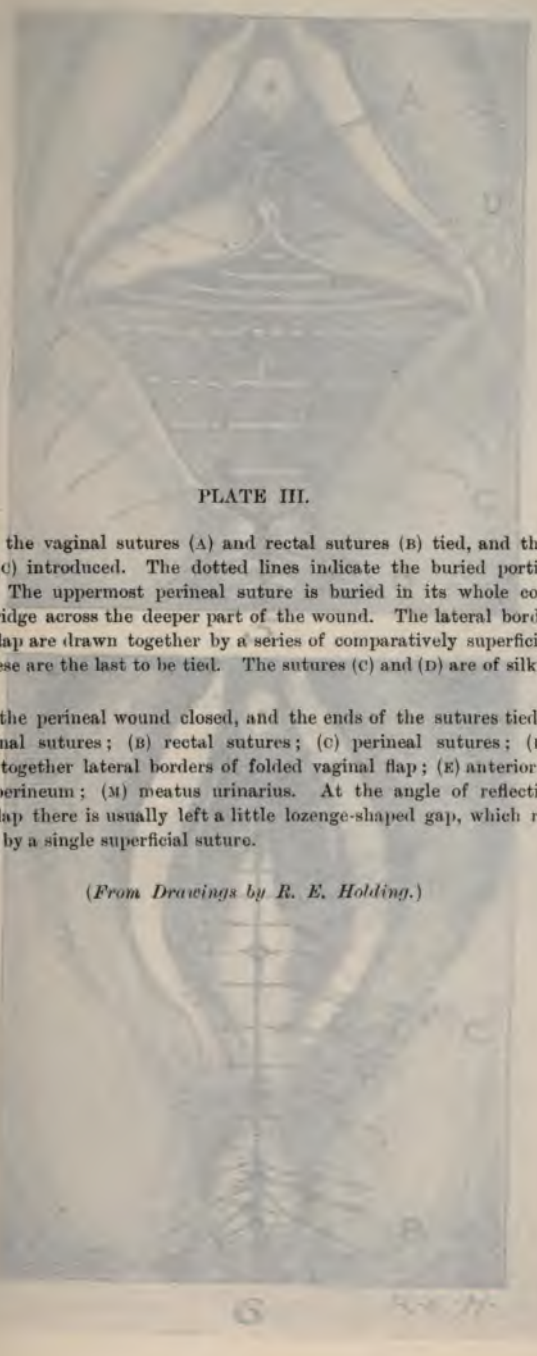


PLATE III.

FIG. 5 shows the vaginal sutures (A) and rectal sutures (B) tied, and the perineal sutures (C) introduced. The dotted lines indicate the buried portion of the sutures. The uppermost perineal suture is buried in its whole course; the others bridge across the deeper part of the wound. The lateral borders of the vaginal flap are drawn together by a series of comparatively superficial sutures (D). These are the last to be tied. The sutures (C) and (D) are of silkworm-gut.

FIG. 6 shows the perineal wound closed, and the ends of the sutures tied together. (A) Vaginal sutures; (B) rectal sutures; (C) perineal sutures; (D) sutures bringing together lateral borders of folded vaginal flap; (E) anterior boundary of new perineum; (M) meatus urinarius. At the angle of reflection of the vaginal flap there is usually left a little lozenge-shaped gap, which requires to be closed by a single superficial suture.

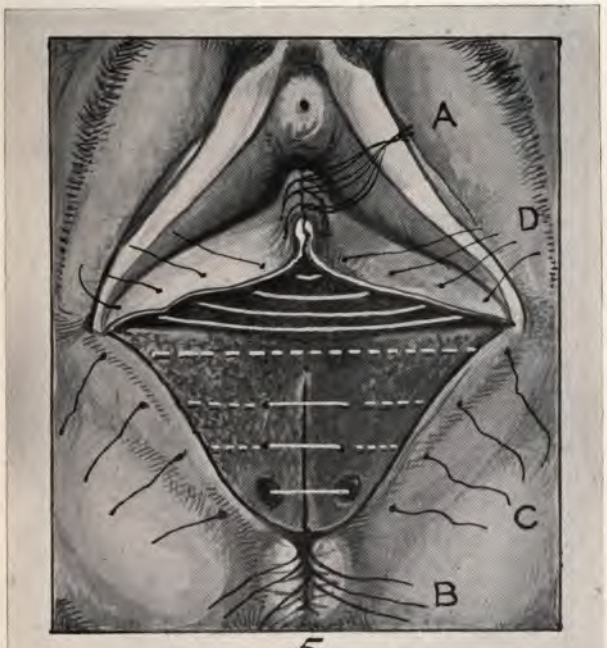
(*From Drawings by R. E. Holding.*)

PLATE III.

Fig. 1 shows the vaginal sutures (*v*) and rectal sutures (*r*) tied, and the perineal sutures (*p*) untouched. The dotted lines indicate the buried portion of the sutures. The uppermost perineal suture is buried to its whole course; the sutures bridge across the deep part of the wound. The lateral borders of the vaginal flap are drawn together by a series of vertically disposed sutures (*s*). These are the last to be tied. The sutures *v* and *r* are of silkworm gut.

Fig. 2 shows the perineal wound closed, and the ends of the sutures tied together. (*v*) Vaginal sutures; (*r*) rectal sutures; (*p*) perineal sutures; (*s*) sutures bringing together lateral borders of folded vaginal flap; (*a*) anterior boundary of new perineum; (*m*) meatus urinarius. At the angle of reflection of the vaginal flap there is usually left a little lozenge-shaped gap, which requires to be closed by a single superficial suture.

(*From Drawings by R. A. Watkins.*)



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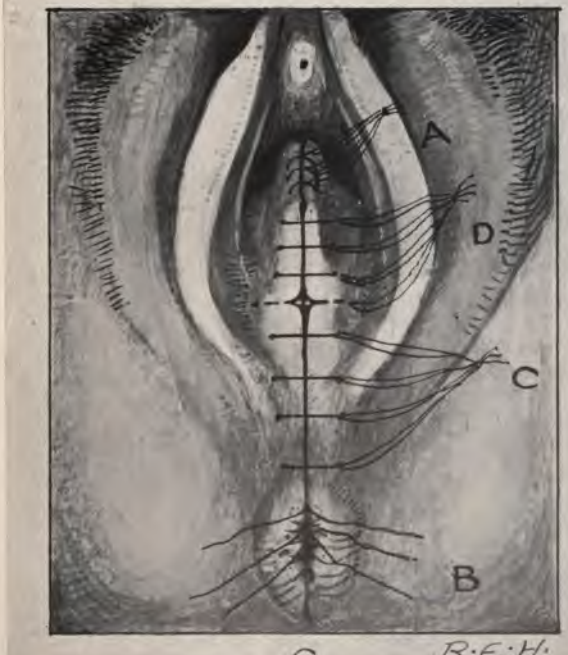

6 R·E·H·

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The President said that he had never had a full time extra-uterine pregnancy. He had had one at the seventh month and one at the eighth month.

Meeting IX.—21st June, 1905.

The President, Dr. J. K. Kelly, *in the Chair*.

DISCUSSION ON THE SECONDARY OPERATION FOR COMPLETE RUPTURE OF THE PERINEUM.

At a conjoint meeting with the Edinburgh Obstetrical Society held in Glasgow, Dr. Cullingworth, Hon. President of the Glasgow Obstetrical and Gynæcological Society, in opening a discussion on the above subject, read the following paper:—

I wish, in the first instance, to thank the Glasgow Obstetrical and Gynæcological Society for the honour it has conferred upon me in appointing me its Honorary President. The compliment is one that I appreciate very cordially, as, indeed, anyone must who succeeds to an office that has been held by so many distinguished men. The office of Honorary President of this Society is *almost* a sinecure, but not quite; for it is expected of its holder that, sometime during his two years' tenure of the chair, he will deliver an address or open a discussion. The object of my visit to-night is to discharge this duty. Scotland has, for so many years, taken a leading part in the scientific study and scientific practice of obstetrics and gynæcology, and has established, in consequence, so high a reputation in the department of medicine which these subjects represent, that any stranger like myself called upon to address a society of Scottish obstetricians and gynæcologists must of necessity approach his task with considerable diffidence. A few months ago, a well-known and very able writer and critic went down from London to address a large working-class audience in Ancoats, Manchester, and he began by telling them that he was horribly afraid of them all. I do not know that I could truthfully go quite so far as that, but I can at least say that I stand in very wholesome awe of you. It seemed to me, therefore, in thinking over what topic

I should select for debate this evening, that I should be wise to content myself with some simple clinical subject of which a fairly long hospital experience (now, I regret to say, at an end) has enabled me to form a definite opinion, and to speak with a certain amount of authority.

I have chosen the subject of perineorrhaphy. I cannot find, though I have looked through the published proceedings of your Society for a considerable number of years, that any communication or any paper on this subject has been brought before it. In the glamour of the new possibilities that have been opened up to us by the advances in abdominal surgery, the interest in the older gynæcological operations has of late years somewhat dwindled. And yet there can be no doubt that some of those older operations, especially the plastic operations, minister quite as much to the comfort and well-being of our patients as the more showy achievements of modern times. I need only mention as instances the operation for the cure of vesico-vaginal fistula and the operation I am now about to consider; the one, if successfully performed, restoring the power of control over the bladder; the other, the power of control over the rectum. Can any operation offer a more welcome transition from misery to comfort? There may be some present—indeed, there may be many—who think the last word has long ago been said on the subject I have chosen. I do not myself share that opinion, and therefore it is that I ask your indulgence whilst I point out what I conceive to be the true principles of the operation of perineorrhaphy, and then try to describe a method of operating that has afforded satisfactory results in my own practice. In a paper that I published rather more than twenty years ago,[1] and again in a contribution that lies buried in a volume of hospital reports[2] which I cannot expect anybody to have seen, I traced the various steps by which the operation now generally performed has reached its present development. I may not always have ascribed the various improvements to the right individual, or I may have overlooked the fact that it is possible for several different individuals to arrive quite independently at the same idea, but questions of priority in such matters are of but little importance, and I think my account of the gradual development of the operation may

[1] "On the Operation for Rupture of the Female Perineum," *Medical Chronicle*, Manchester, November and December, 1884.

[2] "The Operation for Ununited Rupture of the Female Perineum" (with illustrations), *St. Thomas's Hospital Reports*, vol. xxvii, 1898, London, pp. 433-447.

be taken as substantially correct. I will therefore, with your permission, and as briefly as possible, tell the story once again, quoting where necessary from my former essay.

In the operation as performed by the earlier operators, the denuded surface was so narrow that, even in the successful cases, the restored perineum was necessarily thin and fragile, a mere bridge, indeed, above which the vagina formed a pouch. To obviate this, later operators enlarged the area of the denuded surface by removing the tissues more freely from the sides of the laceration, and dissecting up a more considerable portion of the mucous membrane from the posterior vaginal wall.

In 1853, Langenbeck devised an operation which he termed *perineosynthesis*, the express object of which was to shelter the newly-united surfaces from the vaginal discharges. His suggestion was, after freshening the two sides of the rent with scissors, to dissect a semilunar flap of mucous membrane from the anterior surface of the recto-vaginal septum, and to lift it up so as to rest, in the form of an inclined plane, upon the vaginal aspect of the perineal wound, to which he fixed it by its convex border. This operation was afterwards abandoned as being too complicated, and as not affording sufficient security against the formation of recto-vaginal fistulæ.

Eleven years later, Mr. Jonathan Hutchinson proposed, in an article in Holmes's *System of Surgery*, that instead of a special flap being made for the purpose, as was done by Langenbeck, the flap removed during the necessary freshening of the surfaces should itself be turned upwards into the vagina, trimmed at its sides, and made to slope forwards over the newly-united parts.

It was, however, in a paper published in April, 1876, by Dr. Delore, of Lyons, in the *Annales de Gynécologie*, that the full importance of saving the flap seems for the first time to have been appreciated. Delore advocated dissecting up two triangular flaps, turning them with their raw surfaces towards each other and retaining them in position by deep and superficial sutures. This method had for its object the multiplication of points of contact without increasing the area of the actual wound. It also protected the newly-united surfaces from the vaginal discharges and avoided the sacrifice of tissue.

Innumerable modifications have since been suggested. Perhaps the most important are those that bear the names of Emmet, Hegar, Hildebrandt, and Lawson Tait. Emmet's operation, or some modification of it, is that usually practised

in the United States, while in this country the flap-splitting operation of Lawson Tait is perhaps the one most generally adopted. It was Lawson Tait who taught us how to simplify and shorten the first part of the operation by splitting the flap, as he called it, by means of angular scissors, instead of laboriously dissecting up the flap in the old way. He also taught us that we could diminish the pain that had hitherto almost invariably followed the operation by including no skin in the perineal sutures. The weak point of his operation, in my opinion, is that it leaves unsutured both the rectal wound and the vaginal. The absence of any attempt to bring together the divergent sides of the rectal rent makes it extremely unlikely that the torn ends of the sphincter muscle will re-unite, whilst the non-suturing of the vaginal rent leaves the newly-united perineal wound unnecessarily exposed to the vaginal discharges and omits a valuable safeguard against the formation of a recto-vaginal fistula. These are the main reasons that have prevented me from adopting Tait's operation in its entirety, notwithstanding the ease and rapidity with which it can be performed and the many points in which it marked a distinct advance on most of the methods of operating previously in vogue.

So long ago as the year 1879 the late Dr. Alfred Wiltshire, at a meeting of the Obstetrical Society of London, maintained that it was essential to the complete success of the operation that the torn ends of the sphincter should be exposed and re-united, and he recommended that the muscular fibres should be rendered actually apparent to the eye and then be brought together by silk sutures. A suggestion of a similar kind was made by Howard Kelly, of the Johns Hopkins Hospital, Baltimore, in 1899. In a paper read before the American Gynæcological Society on 24th May of that year, he expressed his conviction "that the best method of treatment of a torn sphincter is by liberating it from the surrounding tissue and then uniting the freed ends by buried catgut sutures;" and "that the results of this method of suturing are far better than those obtainable by any of the methods generally practised, which depend upon the approximation of broad surfaces, including the sphincter ends, without using any special plan of suturing to hold the ends in accurate apposition."

Such is a brief account of what I believe to be the more important suggestions that have been made from time to time towards the improvement of this operation. I purpose now to consider the conditions that any method of operating ought to fulfil in order to be considered satisfactory.

1. It should restore the perineum as nearly as possible to its original size and shape. There is a great tendency for operators to be satisfied if the new perineum has a good covering of skin of the orthodox extent, but it scarcely needs to be said that the skin in the situation of the perineum may present quite a natural appearance, and yet there may be no real perineum at all. The gynæcological operator should familiarise himself with the size and shape of the average perineum of the adult female by taking mental note of these during his ordinary examination of patients. One of the many advantages of habitually examining in the dorsal position and sitting where the external parts can be distinctly seen is that one becomes familiar with the normal aspect and dimensions of those parts under varying conditions as to age, child-bearing, &c., in a way that is otherwise impossible. The knowledge thus gained is extremely valuable when it becomes necessary to undertake repairs. It is always a temptation to the inexperienced, partly from want of observation as to the normal length of the perineum and partly from an over anxiety lest the new perineum should not be long enough, to carry the new perineum too far forward. This, especially during the child-bearing age, is to be carefully guarded against. Should the patient again become pregnant and bear a child, a perineum so prolonged must almost of necessity give way. I have even known of a perineum repaired so extravagantly well as to create difficulties in the married life.

2. In an ideal operation there should be brought into apposition a sufficiently large area of raw surface on the two sides to make union almost certain. The multiplication of points of contact in a wound greatly facilitates the healing process. This is a point to bear in mind in all plastic operations. In the operation I shall presently describe a considerable extension of raw surface is secured by turning the vaginal flap upwards so that when the perineal wound is closed this flap will necessarily be folded upon itself in such a way as greatly to increase, indeed, almost to double, the areas of denuded surface brought together.

3. A satisfactory perineal operation requires, in my opinion, that the edges of the rectal side of the tear and the edges of the vaginal side of the tear should be brought severally together by careful suturing. It will be easy on reference to the drawing to realise that when the torn recto-vaginal septum is divided, whether it be by splitting with scissors or by dissection with a knife, there will necessarily be a V-shaped notch in the raised flap exactly corresponding to the triangular

gap in the rectum. The triangular gap in the rectum should be carefully closed in order to restore the lower end of the bowel to its normal condition. The V-shaped notch in the vaginal flap should be closed, partly to restore the integrity of the flap so that it may be an effective shield to the new perineum from vaginal discharges, and partly to ensure the patient against the formation of a recto-vaginal fistula.

4. It is a further condition of a satisfactory operation that the patient's convalescence should be rendered as free as possible from pain and discomfort. To this end advantage should be taken of the fact, which we owe to the acute observation of Lawson Tait, that when no skin is included in the grip of the perineal sutures the patient suffers no pain. I do not advocate the plan that he adopted of avoiding the skin entirely. That plan involves the concealment of the knot of the sutures from view, and as a consequence much groping about and disturbance of the wound when the time comes for the stitches to be removed.

Fortunately, freedom from pain is almost equally well secured by including only a narrow edge of skin in the sutures, and by taking care that there is no tension when they are tied.

As a further means of reducing the discomfort of convalescence to a minimum, it is desirable that the dressings and manipulations required should be as few and simple as possible. I daresay every operator has found this out, but I will at anyrate mention a little later on the methods I have found most satisfactory in these respects.

5. Again, an operation in order to be of general applicability should be as uncomplicated in its character and as easy to execute and to explain as is compatible with a successful result. No doubt many excellent operations have been abandoned owing to their not fulfilling these conditions of simplicity of design and ease of execution. At the best, the operation of perineorrhaphy is an extremely difficult operation to describe, and one of which the steps are difficult to follow from any description however clear. But these difficulties, inherent in the very nature of the operation, are greatly and quite unnecessarily increased by complicated methods of operating.

6. Lastly, and most important of all, the operation should have the result of restoring to the patient efficient control over the contents of the bowel. If this result be not attained, however excellent may be the *appearance* of the new perineum, the operation must be pronounced a failure.

Having now stated what I believe to be the criteria by

which methods of performing this operation ought to be judged, I will occupy the remainder of the time at my disposal by describing the method of operating that I have for many years adopted. It is based on a method which I learnt twenty-five or thirty years ago from a junior colleague at St. Mary's Hospital for Women, Manchester, my friend Mr. J. H. Ewart, now of Eastbourne. I claim no originality for it, nor does he. The details have necessarily been altered from time to time with increased experience, but the principles which underlie the operation remain the same.

The appearances presented in a case of complete rupture of the perineum are well shown in the drawing (Fig. 1).

The tear through the recto-vaginal septum—originally, of course, linear—has assumed the usual appearance of a triangular gap, owing to the divided ends of the torn sphincter becoming widely separated. The position of the torn ends of the muscle is usually indicated by a dimple on each side of the anus. These dimples are seldom absolutely symmetrical in position. The sides of the triangular gap are white, well defined, and cicatricial. They mark the line where vaginal mucous membrane and rectal mucous membrane meet.

Mr. Lawson Tait commenced the operation by directing his assistants to make lateral traction with the fingers on each side of the anus, whereby all appearance of a triangle is for the moment effaced, the two sides forming a single, tense, transverse white line. By plunging one blade of a pair of angular scissors deeply into the tissues of the recto-vaginal septum at the left extremity of this white line, and dividing the septum into two layers from the one end of the white line to the other, this part of the operation is greatly facilitated. From each extremity of this first incision, a cut is now made running forwards and another running backwards, the whole series of incisions being at this stage roughly represented, as Mr. Tait suggested, by the capital letter **H**. The forward incisions will mark the outer boundaries of the vaginal flap, and their length will determine the length of the new perineum. The inexperienced are apt, as I have said, to be tempted to carry the anterior border of the new perineum too far forwards, improving, as it were, upon the original. This is to be avoided for the reasons already given. It will generally suffice for these incisions (which are carried along the line at the sides of the vulva where skin and mucous membrane meet, or, perhaps, to be more exact, where the skin alters in character) to be made to terminate where scar tissue

ends, *i.e.*, where the original perineum ended. If this is difficult to recognise, it will usually be safe to let them terminate where the labia minora commence.

The two backward cuts are much shorter. Their object is to facilitate (1) the exposure and (2) the union of the divided ends of the sphincter.[1]

The completion of the vaginal flap may be accomplished either with the scissors or with the knife, the left forefinger being on guard in the vagina. The line of reflection of the flap should be nearly horizontal, and should extend completely across from the anterior end of one lateral incision to the anterior end of the other.

Now that the fingers of the assistants have been withdrawn, and all lateral traction has been removed, the triangular shape of the gap in the torn anterior wall of the rectum will again be apparent. This gap will, as I have pointed out, be represented in the flap which has been dissected up, and which may now be called the vaginal flap. I believe that it is worth while taking considerable care to restore the integrity both of the vaginal flap and of the anterior wall of the rectum.

With regard to the method of suturing,[2] I cannot regard it as a point of importance, and shall be sorry if it be made to figure too largely in the debate. I have my own plan, which I will proceed to describe. At the same time I quite recognise that this is a matter about which every operator will have his own opinion, and that equally good results are obtainable by very different methods. The method I usually employ is the following:—

The first suture passed is the buried perineal suture. (This may necessitate the introduction of the finger into the rectum, so that it is better to do it before inserting the rectal sutures.) The perineal needle is introduced into the skin about one-sixth of an inch from the margin of the denuded surface on the patient's left side, at a point immediately below the angle of reflection of the vaginal flap. It is passed completely round from one side to the other in the substance of the recto-vaginal septum, just above the line of reflection of the flap, and the point is made to emerge on the right side at a spot corresponding to the aperture of entrance on the left side. The

[1] If a little triangular piece of skin be left between the backward incision and the darker tissues of the anus, it will be found to be a good plan to remove it.

[2] The suturing is facilitated by passing a temporary ligature through the vaginal flap, as shown in the drawing, and holding it up out of the way.

needle should not, during its course, make its appearance either in the rectum, in the vagina, or in the wound. The suture should be a buried suture throughout. Its use is to brace up the whole perineum, and to prevent there being any spaces left in the deeper part of the wound, where the raw surfaces are not in contact, and in which fluids can accumulate. In cases where no such spaces seem likely to occur, the buried suture may be dispensed with. When the needle has been successfully passed, the eye is threaded with a stout silkworm-gut suture and the needle is withdrawn, the suture being left in position but not tied.

The rectal tear is now sutured from above downwards, the sutures being introduced by means of a full-curved needle, held in a firm needle-holder, at the edge of the rectal mucous membrane on one side of the rent. The point of the needle is brought out on the denuded surface at a point distant about half an inch from the point of entrance, so as to ensure the inclusion in the stitch of a sufficient amount of tissue. It is then carried across to enter at a corresponding point in the raw surface of the opposite side, and to emerge at the margin of the rectal mucous membrane at a point exactly opposite the original point of entrance. The needle being now removed, the suture is tied and the ends are dropped into the rectum before the next suture is introduced. Two, three, or four other sutures, according to the requirements of the case, are then introduced in the same manner, care being taken that the ends of each suture as it is tied are dropped into the rectum and kept back out of the way. I always use catgut for the rectal sutures, so that it may not be necessary to disturb the parts for their removal. When all have been introduced and tied, and not before, the ends may be cut off at the anus.

The vaginal side of the laceration is now closed by means of a series of interrupted sutures of silkworm-gut (see Figs. 4 and 5), the ends of which are left long so that they can be loosely tied together and turned into the vagina, whence they can be easily withdrawn for removal. The time has now come to introduce the remaining perineal sutures. For this purpose the best material is stout silkworm-gut. The sutures are introduced through the skin at the same distance from the edge as in the case of the buried suture already described, viz., about one-sixth of an inch. These sutures are made to pass deeply, and they remain almost, but not completely, buried. They cross from one raw surface to the other at the deepest part of the wound, and emerge at a point on the skin

of the opposite side exactly corresponding in position to the point of entrance. The number required varies; usually it is three or four. I generally pass them in order from before backwards, leaving them untied until all have been passed. The tying is done in reverse order, viz., the hindermost first. This hindermost stitch should bring together the ends of the torn sphincter and secure the closure of the front of the anus. Immediately before the perineal stitches are tied, the wound receives a final irrigation and cleansing.

The closure of the perineal wound will have the effect of completing the folding upon itself of the vaginal flap, and the edges of the flap should be united by interrupted silkworm-gut sutures, continuing forwards as it were the row of perineal sutures, but not passing them so deeply.

As I have already said, most operators will have their own favourite method of suturing. I mention my own because it is simple, easy, and effective; but suturing in tiers I can well understand may be equally so, although I have not myself tried it.

Now is the time to introduce any superficial sutures that may be required in order to bring the edges of the skin neatly together. Sometimes no such sutures are required; sometimes three or four. It will be noticed that I have not myself adopted the plan of dissecting out and suturing the torn muscle fibres of the sphincter ani. I am a little sceptical both about the feasibility of this manœuvre and the necessity for it; and as I have almost invariably had the satisfaction of restoring control over the contents of the bowel without it, I do not care to prolong the operation, as *I* think, unnecessarily. There is usually a little quadrilateral gap left just at the anterior border of the new perineum, where, in short, the perineum ends and the vaginal flap begins. This gap should be closed by a single suture.

I am in the habit of leaving the ends of the perineal sutures long, and tying them loosely together in a bunch. The advantages of this method are as follows:—(1) It adds to the patient's comfort by avoiding the pricking of the skin, which almost always happens when the ends of the sutures are cut short; (2) if any dressings are necessary, they can be applied much more easily than when the sutures are cut short; (3) it greatly facilitates the removal of the sutures, for, when the time comes for this to be done, the sheaf is untied and each suture in turn is slightly pulled upon by means of its long ends, so that the knot can be easily made visible and the suture divided.

The less elaborate the dressing of the newly-repaired perineum the better. Two little strips of lint, 3 inches long by three-quarters of an inch wide, anointed with vaseline and laid parallel with each other on each side of the wound, are all that is required. When the thighs, now flexed upon the abdomen, come to lie in their natural position, these two bits of lint will be found to have their unanointed surfaces in contact, the bunch of perineal sutures projecting between them. And here let me venture to give a hint as to the nursing of these cases. It is quite obvious that the less interference there is with the newly-united parts the better. I therefore only order vaginal douching when it is specially indicated. Otherwise, I prefer that my nurses content themselves with keeping the external parts clean by means of wool-sponges and warm water.

This local cleansing and changing of dressings can be done with least disturbance of the patient by getting the patient to flex the legs on the thighs and the thighs on the abdomen in such a way as to afford a full view of the wound. If the patient cannot, by grasping each leg under the knee, hold the limbs sufficiently out of the way for the nurse's purpose, the nurse should get an assistant to support the heels of the patient whilst she is being attended to.

The catheter is usually required for the first two or three days. It is essential that the nurse should *see* and cleanse the orifice of the urethra before she inserts the catheter, and particularly after the operation of perineorrhaphy, lest by relying upon the sense of touch she should disturb the wound or drag upon the sutures. As soon as a patient is able to dispense with the catheter, she should do so. If she turns over on to her hands and knees, there is no more fear of the wound being soiled than when the urine is drawn off artificially.

It was once the fashion to tie the patient's knees together and to keep her almost motionless. All such restrictions are unnecessary and therefore cruel.

All that I require from my patients is that they preserve the recumbent posture absolutely for at least fourteen days. I have sometimes tried the experiment of relaxing this rule, but have always regretted it. Otherwise, however, I allow my patients full liberty to lie in any posture they like and move about as they like.

Two points connected with the after-treatment remain to be considered—the question of aperients, and the best time for taking out the sutures. First, as to the question of

aperients. The practice used to be to keep the bowels unopened for a week or ten days. It was a barbarous practice. The torture the poor patients suffered when trying to expel the scybala was painful to witness, and the damage done to the newly-united parts by the straining far more than counterbalanced any benefit that accrued. Mr. Lawson Tait, with his usual sagacity, saw the evils of the old practice, and instituted a reform. But he went to the other extreme, and gave small doses of castor oil every day from the first. I have tried this plan repeatedly, and am persuaded that it is unnecessary, often very irritating, and not seldom positively injurious. The object to be aimed at is to ensure that the first fæcal evacuation shall be passed painlessly and without the necessity of straining. Enemata are in my opinion to be avoided, if possible, on account of the danger of interference with the newly-united wound on its rectal aspect. This might occur either from a sudden movement on the patient's part whilst the nozzle was being inserted or from over-distension of the lower part of the rectum with the fluid injected. I have made many comparative observations, and have finally adopted the routine plan of administering a full dose of castor oil (a fluid ounce) sixty hours after the operation. This is almost invariably found to result in the easy passage of a semi-solid motion within a few hours. If it has not acted in four hours the dose should be repeated. The patient is instructed not to strain even if tempted to do so, which she seldom is. An aperient every other day, at bedtime, will usually be required for the next few days.

Secondly, as to the best time for removing the sutures. This, of course, must to a certain extent depend upon the material employed. Since I adopted silkworm-gut for the perineal stitches, I have found it best to remove the stitches on the eighth day. Some remove them earlier, some keep them in longer. I have tried both plans, and have seen no reason to adopt either of them, except under special circumstances. The vaginal stitches may often, with advantage, be left a few days longer. Their removal involves more disturbance of the parts than the removal of the perineal sutures, and it must not be forgotten that, however satisfactory may be the appearance of the newly-united wound, very little interference with the neighbouring parts is sufficient at this stage of the healing process to open it up.

Sometimes when the sutures have been removed, the skin edges are found not to have completely united along the whole length of the perineum, a small portion of the wound being

left to heal by granulation. This need cause no anxiety, provided the greater part of the wound has healed satisfactorily. Again, the operator is occasionally dismayed by the news that a little fæcal matter has escaped involuntarily. The significance of this occurrence depends upon whether the escape has taken place from the anus, from the perineal wound, or from the vagina. If from the anus, the occurrence is probably of no moment. If from the perineal wound, experience has shown that the sinus generally closes spontaneously as the healing process becomes complete. But if the escape is from the vagina, and there is discovered on examination an aperture of communication between the vagina and the rectum, there is very little likelihood of spontaneous closure. A recto-vaginal fistula generally becomes established, necessitating another operation at some future time.

It is perhaps going a little outside my subject, but I may be allowed to state, as the result of some experience (derived chiefly from cases originally operated upon, not by myself, but by others), that the most successful way of dealing with recto-vaginal fistulæ is, not to pare or split the edges and then close the opening as in the case of vesico-vaginal fistulæ, but to divide all the tissues—I was going to say "south of the fistula"—and treat the case as one of complete laceration of the perineum. Treated in that way, success is almost invariable, whereas, when attempts are made to close the fistula by an operation similar to that which has proved so successful in vesico-vaginal fistula, the results are apt to be most disappointing.

It is time, however, that I closed my remarks. Before I do so, may I recapitulate very briefly what I conceive to be the essentials of a satisfactory perineorrhaphy? They are as follows:—

1. It should restore the perineum, as near as possible, to its original size and shape.

2. It should preserve the vaginal flap and utilise it for the purpose of increasing the extent of raw surface, thus facilitating the process of healing.

3. It should include the separate and independent closure of the rectal side of the rent and of the vaginal side of the rent, as well as the stitching up of the perineum proper.

4. It should involve the least possible amount of pain and discomfort immediately after the operation and during the convalescence.

5. It should be simple in character, easy to execute, and

easy to understand. The reason for each step should be obvious.

6. It should restore to the patient efficient control over the contents of the bowel.

I shall be interested to hear the experience of my Scottish brethren in regard to this operation of perineorrhaphy, and, in the meantime, I shall be glad if anything I have said to-day helps towards a more definite recognition of what we may fairly expect to accomplish by the operation, or towards a greater simplification of the operation itself.

Dr. Berry Hart said that to avoid oozing at the top of the rectal flap, he used catgut in tiers. He recommended very thorough evacuation of the bowels before operation, and thought it advisable to starve the patient for a few days before.

Dr. W. L. Reid commented on the detail of Dr. Cullingworth's description. Most operations, he said, were founded on Lawson Tait's. He advised vaginal douching, as there was often some discharge which was liable to decompose. For this purpose he passed a rubber tube into the vagina. No dressing was required. The wound was cleansed by running warm boracic solution freely over it. The catheter should never be used if it could be done without. Before and after the passing of urine, warm boracic solution was passed over the parts. He had never succeeded in exposing the ends of the sphincter, but he passed a suture where the ends of the sphincter were supposed to lie.

Dr. Barbour suggested carrying the dissection farther back than Dr. Cullingworth. He passed the rectal sutures from the vaginal side.

Dr. Sloan said that he did not suture the vaginal flap, but allowed it to form a floor for the vagina. He believed that Lawson Tait buried the sutures so as to grasp the levator ani. He advised curetting before the operation.

Dr. Brewis said that he was in the habit of doing a modified Lawson Tait operation. He had found no difficulty in dissecting out the ends of the sphincter. He made a transverse incision above the upper end of the tear, and dissected the flap from above. He used chromicised catgut, and passed it in at the cut edge, not through the skin.

TRANSACTIONS

OF THE

GLASGOW

OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

MEETINGS OF SESSION, 1905-1906.

MEETING I.—25TH OCTOBER, 1905.

The President, DR. J. K. KELLY, *in the Chair*.

I.—SPECIMENS.

A. BY DR. J. M. MUNRO KERR.

1. Ovarian cyst with twisted pedicle.
2. Specimen of salpingo-oöphoritis, probably tubercular, removed from a patient with a bicornuate uterus in which division was complete down to the cervix.

B. BY DR. ALEX. MILLER.

Vesicular mole removed after digital dilation of the cervix.

C. By Dr. J. K. Kelly.

1. Ovarian pregnancy.
2. Two myomatous uteri. In one a myoma had to be enucleated before the uterus could be raised out of the pelvis.
3. Fibromata on branches of the pudic nerve.

II.—PROLAPSE OF THE UTERUS IN A VIRGIN.

By Dr. J. Nigel Stark.

Prolapse of the uterus and vaginal walls, in the vast majority of cases, is due to and occurs subsequently to pregnancy. The patient is usually of the working class, multiparous, and lacerations of the vagina and perineum have occurred at the birth of one or more of her children. Normal involution of the uterus has not developed, the vaginal outlet has become relaxed, as have also the utero-sacral and utero-vesical folds, and the round ligaments, and descent of the uterus and the vaginal walls is the consequent results. There are few pathological conditions which produce more suffering, discomfort, and incapacity for work, and few which more merit careful consideration and treatment.

It is easy to follow in one's mind the development of prolapsus in such cases, and to furnish an explanation of its causation. But it is otherwise when we discover it in a nulliparous unmarried girl, and its comparative rarity forms my reasons for reporting a case.

The patient when she was sent to me by Dr. Murray Lyon, Cathcart, in January, 1905, was 18 years of age, and complained of prolapse of the uterus of two years' duration. She was a healthy-looking, well-nourished girl, of fair complexion and medium height. Menstruation had begun at the age of 14, had been regular every four weeks, lasting four days, unaccompanied by pain, and fairly profuse in amount.

The family history was satisfactory, as her father and mother were living and in good health, and of ten children, eight were alive and well. She had been at school between the ages of 6 and 13, after which she entered a baker's shop as errand-girl and was engaged for three years there carrying parcels—frequently heavy—from 6·30 in the morning till 7 in the evening; 10 on Saturdays. About the end of these three years, when she was 16, she began, without any preliminary sensation of pain, to be troubled with "falling of the womb," but though she left her situation, she engaged in no less heavy

work, first as a waitress in a tearoom, her hours here being from 8 A.M. till 9 P.M., and latterly as a laundress. At the laundry work she stayed for a year and a half, her hours being from 8 A.M. till 10 or 11 P.M., during all which hours she was constantly standing. Gradually during these two years protrusion became more and more aggravated and though pessaries at first afforded slight relief, latterly they could not be retained. It was impossible for her to continue at work, as when she walked or even stood a large swelling protruded externally and produced great discomfort and pain.

Upon examination I found a condition of complete procidentia. The whole body and cervix of the uterus, together with the vaginal walls, were prolapsed about 3 or 4 inches beyond the vulva. The mucous membrane of this mass was dry, hard, and wrinkled, and partly ulcerated on its posterior surface. It was somewhat difficult to reduce, and after reduction came down again very readily. The perineum was stretched and thinned.

The patient was admitted into the Samaritan Hospital, and, on 14th February, I performed ventrofixation. This retained the uterus in good position, but owing to the laxity of the vaginal walls I performed, on 16th March, anterior and posterior colporrhaphy, an operation of some difficulty on account of the dryness and toughness of the vaginal mucous membrane. The ultimate result was good, and the patient's condition at this date is very satisfactory, though she is again at laundry work, and standing daily for about ten to twelve hours.

Cases of prolapse in young girls are rare, but rarer still are those of congenital origin. Neugebauer, of Warsaw, recorded one, seen first by Krause, in which prolapse of the uterus began after the infant had cried for a time, and along with it there were complete inversion of the vagina, commencing inversion of the urethra, and a certain degree of anal ectropion. In this, as in other cases reported—as that by Ballantyne—there was concomitant spina bifida of the lumbar or spinal region, and therefore it may be assumed that the prolapse resulted from some disturbance of the innervation of the organs and tissues on account of, and as a result of, the spina bifida.

All cases of congenital prolapse have ended fatally, not from the prolapse but from the spina bifida, the death occurring from gradually increasing weakness, diarrhœa, and convulsions. The question has arisen as to whether prolapse in young girls

is not of a nervous origin, the predisposing cause being found in a congenital paretic relaxation of the muscles of the perineum and vulva. In my patient it is certain that no spina bifida existed at birth, and there is now no spina bifida occulta. We are therefore driven to the conclusion that the chief cause of the prolapse was increased abdominal pressure, due to the heavy weights lifted and carried and the long hours of standing every day for so many years. I am bound to admit also that the girl confesses to having been a confirmed wearer of tight corsets, and when I saw her a few days ago her waist was most unmercifully drawn in. Severe constipation, from which she habitually suffered, may also have played a part as an etiological factor. But it is quite possible that there may be in some instances of prolapse in virgins a lesion of the spinal cord, which has led to developmental disturbances in the pelvis, and in others, without any actual lesion, a lack of tonicity in the pelvic floor, which is unable to bear any exaggeration of the intra-abdominal pressure.

Surely it is sinful to permit young girls at the most critical period of their lives—between the ages of 13 and 16—to engage in exhausting work for from twelve to sixteen hours daily, in continually lifting and carrying weights beyond their strength. A Shop Hours Bill is required in order to prevent such slavery, which can only lead to interference with normal development and to physical unfitness. I have seen records of two cases similar to mine. One girl was 17, who was engaged in hard work for two and a half years, her daily hours being from 7 A.M. till 11 P.M. Her prolapse began when she was 14, and was suddenly aggravated about two years afterwards by her lifting a load of coals. In the other case the girl was 16 years of age, and had been engaged from an early age at domestic service. In neither was there mentioned any previous history of spina bifida.

It must be noted that certain cases of prolapse in virgins are in reality examples of hypertrophy of the cervix. Of this condition there are two varieties, one in which the cervix hypertrophies in its vaginal portion, and, the attachments of the vagina to the uterus not being interfered with, there is no descent of the uterus, and it and the vagina maintain their normal relations to the pelvis. In the second variety, the cervix hypertrophies in the supravaginal portion, the vaginal walls become pushed down, and, while for a considerable time there may be no descent of the uterus, yet it finally occurs, on account of the enlarged cervix dragging upon it. This form of prolapse is therefore secondary to the hypertrophy of the

cervix, and is not of the same character as that exemplified by the case which I have recorded, in which the cervix had undergone no hypertrophy. It is a more common condition, and the diagnosis is readily made. The cervix projects beyond the vulvar cleft, measures from 3 to 4 inches, and the fundus descends only when the erect posture is assumed. In the true prolapse there is a distinct herniation of the entire pelvic floor, the uterus hanging down between the protruded vaginal walls.

The question of treatment cannot be considered apart from that of prolapse at all ages and in every variety. It is evident that the treatment of prolapse would be comparatively easy were it not for the necessity of maintaining patent canals. As it is, it is perfectly impossible to guarantee absolute cure in any case except those of elderly women past the menopause, in whom hysterectomy and vaginal resection can be performed. Still, though the various operations for prolapse, with this exception which is applicable only to a very small number of cases, are not always perfect in their ultimate results, yet much can be done to give relief for lengthened periods of time. In the young nullipara, in whom the so-called prolapse is really an example of cervical hypertrophy, amputation of the cervix and ligation of the uterine arteries can be performed with good results. In the cases of true descent without cervical hypertrophy a combined operation is required. The natural ligaments must be shortened and tightened, or artificial ligaments must be formed, while at the same time the gaping vagina must be reduced in size. It is evident, as I have learned, that neither a suspension nor a colporrhaphy can produce so satisfactory a result as these operations combined. The vaginal canal has become so overdistended, and its walls so relaxed, that it is imperative that it should be narrowed, and in similar cases this must be done. There has been no tearing asunder of muscles, ligaments, and fasciæ, as in ordinary prolapse cases, and though they have been stretched and have lost tonicity, yet it may be expected that in time they will in large measure regain their more normal condition after the removal of the prolapse. The displaced uterus must be retained at a higher level, and of the various operations proposed and performed for such a purpose only three need be mentioned—vaginal fixation, shortening of the round ligaments, and ventrofixation. There is no difficulty in performing the first, but it has fallen into disuse, the second is both dangerous and difficult, and the third is not dangerous and leads in most cases to permanent relief. I now, therefore, always perform

ventrofixation, and have never seen any bad results either immediately after the operation or later on.

Pregnancy in at least one of my cases has occurred, and no inconvenience was experienced while the patient was pregnant, and the confinement was normal in every respect. In the two cases of prolapse in virgins which I have seen recorded, ventrofixation was performed, and the results are stated to have been satisfactory.

Dr. Munro Kerr asked how the operation was done.

Dr. Ritchie described a case occurring in a virgin after lifting a heavy weight. There was no hypertrophy of the cervix or uterus. A small ring pessary gave relief.

Dr. Duff mentioned a case in which ventrofixation was performed without narrowing of the vagina. The prolapse recurred.

Dr. Russell mentioned a case in which there was some spinal deformity.

Dr. Lindsay thought that too much stress was laid on the lifting of weights, and that probably some nervous element or a defective development of the connective tissue of the pelvis was present.

The *President* was of opinion that most cases start with a retroversion, which is induced by long standing, infrequent emptying of the bladder, and constipation.

III.—CASE OF EXTRA-UTERINE PREGNANCY AT FULL TERM.

By Dr. J. M. Munro Kerr.

Mrs. M'S., æt. 36, ii-para, was admitted to the Glasgow Maternity Hospital on 25th August, 1904. No examination was made on the day of admission; pulse, 116; temperature, 101·3° F. The patient gave the following details of her case:—

She is married and twelve years ago bore a son, the labour being normal. From that time to the onset of her present illness she has menstruated regularly every lunar month, the flow lasting three days. In November last (1903) the patient missed her usual period and regarded herself as pregnant. The usual time of her expected menstruation in December also passed without any discharge, but in the first week of January, 1904, she noticed a flow of blood, lasting one day. About this time she became aware of a swelling in the lower part of her abdomen. This swelling continued to grow, and in February was complicated by swelling of both lower limbs.

In March the patient became conscious of what she took for fœtal movements. In this month also she observed a green-coloured discharge from her vagina. This was fairly copious, and was followed by a discharge of blood (of small amount), which has lasted ever since. About the middle of June the patient felt very active movements within her abdomen. These were enough to keep her awake one night, and on the next day ceased altogether and have never been experienced since. Her breasts, which had been tense, softened soon after, and the swellings of her legs disappeared. From that time the patient claims to have noticed a diminution in the size of her abdomen. About a week ago the patient consulted a doctor, who examined her under chloroform and attempted to pass a sound. From that time the patient has had high temperatures. Later, Dr. Munro Kerr was consulted, and ordered the removal of the patient to the Maternity Hospital.

On 26th August, at 3 P.M., the patient was examined, and the following facts made out:—

The patient is anæmic and somewhat emaciated. Her temperature is 102° F., and her pulse is rapid (120), soft, and somewhat irregular. The respiratory murmur is pure. The right side of the heart (ventricle) is slightly dilated. The abdomen generally is swollen, fairly tense, and is tender, especially in the right flank.

In the abdomen is a tumour which has the following characters:—

The tumour, which measures 10 inches transversely, and also vertically from the symphysis pubis, is bilobate, the bulkier lobe to the left. The larger lobe is tense, the smaller presents a doughy consistence. In the larger part can be made out a fœtal head, 2 inches above the symphysis, and to the left and above this fœtal members. The whole fœtus is fixed and cannot be made to ballot, but the fœtal skull when depressed gives a crackling sensation. The tumour is dull to percussion at the sides but tympanitic in front with the patient on her back. The dulness can be varied by changing the position of the patient.

Per vaginam, the cervix uteri is in the middle line, but is deviated to the right and slightly forward. The cervix is small and rigid. The external os is patulous and points somewhat to the left. The internal os is rigid and closed. Within the *arbor vitæ* is a distinct false passage at right angles to the axis of the cervix. The tumour is palpable in all parts of the vaginal vault, and especially in front. It

moves freely in the vertical direction carrying with it the cervix uteri. The lateral movement is somewhat less free. To the right the right round ligament can be palpated about 2 inches from beyond the os internum. The diagnosis of ectopic gestation is made. Towards the end of the examination the tumour seemed less tense and the abdominal pain increased, while free fluid could be made out in the peritoneal sac. Rupture of the sac was recognised and operation prepared for.

At 8 P.M. Dr. Munro Kerr performed a laparotomy.

When the abdomen was opened it was found to contain a considerable amount of dark, blood-stained, badly smelling fluid. There were flakes of lymph over the bowels, which at places were slightly adherent by this means.

A large extra-uterine gestation sac which, in its posterior aspect, had ruptured, was found in the situation of the left broad ligament. In front there was a broad thick layer of tissue, either the broad ligament or a much hypertrophied anterior section of it. Under this tumour and to the right was found the uterus. The sac contained a well developed fœtus, which, however, was macerated. The sac was removed. Its site was packed with iodoform gauze. Two holes were made in the flanks and rubber drainage-tubes inserted, and the abdomen flushed and stitched up.

During the operation a pint and a half of saline solution was run into the left median basilic vein.

11 p.m.—Strychnine (gr. $\frac{1}{30}$) and digitalin (gr. $\frac{1}{10}$) given hypodermically.

27th August.—From 12 till 2 A.M. the abdomen was irrigated through the drainage-tubes with 15 gallons of hot sterile saline solution. The patient much better, has no pain, and no tendency to vomit.

5·30 a.m.—Patient collapsed. Strychnine, digitalin, brandy, *per rectum*, all used without effect.

The patient died at 6 A.M.

The *President* said that he had never seen a case at full term. He mentioned a case near full term, where the fœtus had been dead for a long time, and the sac was filled with foul fluid. He opened the sac without opening the general peritoneal cavity. In another case at near full term which had come under his notice, he found a cord but no placenta. A perforation of the bowel developed. Possibly the placenta had been attached to the bowel, and, in sloughing away, had ulcerated through it. The difficulty in advanced cases was how to deal with the placenta; he had no fixed rules for this.

IV.—CASE OF RUPTURED TUBO-PERITONEAL GESTATION AT END OF THIRD MONTH: LARGE PELVIC HÆMATOCELE.

By Dr. G. Balfour Marshall.

I bring this case before the Society to-night as it presents some points of interest.

In the first place, tubal gestations which continue to develop after primary rupture has occurred are uncommon compared to the number where we are called upon to deal with the case at the stage of primary rupture or abortion, or where a tubal mole has formed. The pregnant tube may rupture between the folds of the broad ligament, and the embryo continue to develop as a subperitoneo-pelvic gestation; or, as in this case, rupture may occur on the peritoneal aspect, and the gestation continue as a tubo-peritoneal or secondary abdominal. Still more rare are those which advance to full term, as in the case just brought before you by Dr. Munro Kerr.

Secondly, the management of the placenta and placental site, when situated in the peritoneal cavity, gives some trouble, though not so much so as in ectopic pregnancies which have developed till after midterm.

Thirdly, the patient in this case had a persistently high temperature for nearly three weeks after operation, the cause of which is not very obvious to me, unless it were due to absorption from a sloughing sore over the sacrum, or a combination of this with the fever which frequently follows operations involving much disturbance to the pelvic peritoneum.

Mrs. M'G., aged 25, was admitted to the Glasgow Royal Infirmary on 10th August, 1905, complaining of pain in the right side and lower abdomen. The following history was obtained:—

The patient had been married six years, and had one child five years ago, the labour being natural and easy. Since then till her present illness she has enjoyed good health. Menstruation has always been regular, of a four-weekly type, lasting five days, moderate in amount, and with little or no discomfort. On 26th June the menses commenced at the expected time, but on this occasion hæmorrhage was profuse and continued for nine days. This menorrhagia was accompanied by pain in the right iliac region, so severe as to confine her to bed for a week, after which time the pain gradually subsided, and she was able to go about again.

Two weeks before admission to hospital, *i.e.*, about the end of July, she was again seized with sudden pain in the right

iliac region and across the lower abdomen. This pain, described as sharp and stabbing, continued till admission. Since the profuse flow six weeks previously there had been no further uterine hæmorrhage. The patient further complained of increased frequency of and pain in passing urine.

Examination.—A tender, fixed, semi-cystic tumour mass fills the lower abdomen. The upper border is 1 inch above the level of the anterior superior iliac spine on the right side, passes straight across the abdomen as far as the middle line, and then slopes down to the middle of Poupart's ligament on the left side. Just to the left of the middle line a hard body, of the shape and size of a slightly enlarged uterus, lies pressed against the anterior abdominal wall.

Per vaginam, the cervix uteri is pushed close against the upper third of the symphysis pubis by a tender, fixed, semi-cystic mass, which bulges down the pouch of Douglas and extends to both sides of the pelvis, especially the right side, which it fills.

Bimanually, the pelvic tumour mass is found to be absolutely fixed and ill-defined above. It has fluid contents, and pushes the whole corpus uteri forward and to the left, close against the anterior abdominal wall.

Diagnosis.—Large hæmatocele from tubal rupture or abortion.

Operation (14th August).—After opening the abdomen, the small intestines were found matted together to form a roof over the blood sac. On separating these the sac was opened into, and seen to contain a large quantity of perfectly fluid blood, with entire absence of any clots. From the right side of the pelvis a perfect three months' old fœtus was removed. It was attached by its cord to the region of the right tube. The case was evidently one of secondary abdominal or tubo-peritoneal pregnancy following on an early rupture of a right tubal gestation, as the placenta was attached to the posterior aspect of the broad ligament as far as the floor of the pelvis.

After ligation of the ovarian artery the right annexa were removed and the placenta stripped off the broad ligament. The blood sac was then stripped off, with the exception of portions which were too densely adherent to intestine to completely remove. Mattress sutures were required to control a free and persistent oozing from the posterior aspect of the uterus. There was also considerable oozing from the placental site and the pouch of Douglas, to control which the pelvis was firmly packed with sterilised iodoform gauze brought out

through an opening made into the posterior vaginal fornix. The abdominal incision was closed.

The patient suffered from severe shock, for which 2 pints of saline were transfused and strychnine (gr. $\frac{1}{15}$) injected. Every two hours thereafter strychnine (gr. $\frac{1}{30}$) was given hypodermically, as also frequent nutrient enemata. The patient rallied, but again showed signs of shock requiring another saline transfusion of 1 pint. She had altogether one-third of a grain of strychnine in the first twenty four hours, showing what a large quantity of this drug can be used in cases of severe shock. The iodoform packing was removed in two days.

The patient ultimately made a good recovery, and returned home in four weeks after operation.

For three weeks after operation the patient showed a high temperature, which was most marked during the whole of the second week, when it ranged between 102° and 105° F. The pulse did not seem to be much influenced by this high temperature, as it was frequently lowest when the temperature was highest, or again, the pulse would remain steady through a variation of two and a half degrees of fever. On the eleventh, twelfth, thirteenth, and fourteenth days, when 105° F. was reached on five occasions, the pulse-rates were 90, 104, 96, 96, and 104 respectively. On the sixteenth day the temperature began to fall, and by the twenty-second day reached normal. I was, and still am, at a loss to account for such a continuous high temperature.

The blood-count showed a certain amount of leucocytosis, but no pus could be discovered anywhere to account for it, either in the pelvis or abdominal wound. In spite of the high temperature the patient felt comfortable. Although pale she did not look ill, and certainly had not the appearance of one suffering from sepsis.

There was a slough over the sacrum caused by a burn from the hot water cushion on which she was laid after operation, but I do not consider that this could cause such a high range of temperature even although the fall was coincident with the healing of the burn wound. I had a similar but more extensive sloughing of the skin on the back in a patient after hysterectomy for fibroids last May, but the temperature only ranged between 99·5° and 101·6° till the wounds healed.

A continuous elevation of temperature due to absorption not infrequently occurs for several days after abdominal operations, even after an easy ovariotomy, but the temperature in this case was much higher than one is accustomed to see

apart from pus formation in pelvis or abdominal wound. Perhaps in this case there was a combination of these two last causes.

As regards the tubal pregnancy, primary rupture no doubt occurred on or about 26th June, the date of onset of pelvic pain and menorrhagia. The embryo would then be about seven weeks old. The tube would be already three weeks pregnant when the patient had a normal menstruation at the end of May, showing that attention is not drawn to a tubal gestation till hæmorrhage takes place into or outside the tube. After the primary rupture, the fœtus continued to develop, the placenta growing from the ruptured tube over the posterior aspect of the broad ligament. Secondary rupture of this tubo-peritoneal pregnancy occurred some six weeks later, with such a copious hæmorrhage as to form a large hæmatocele.

It is to be noted that there was no uterine hæmorrhage associated with the secondary rupture.

The *President* was of opinion that the high temperature was probably due to toxæmia the result of absorption from the sac.

MEETING II.—22ND NOVEMBER, 1905.

The President, DR. J. K. KELLY, *in the Chair.*

I.—SPECIMENS.

A. BY DR. ALICE M'LAREN.

1. Cast of the uterus passed in a case of membranous dysmenorrhœa.

B. BY DR. A. LOUISE M'ILROY.

1. Fibroid uterus removed by supravaginal hysterectomy.

C. BY DR. J. K. KELLY.

1. Cancer of both Fallopian tubes.
2. Myomatous uterus with a cyst of the ovary.

II.—DISCUSSION ON THE MECHANISM, DIAGNOSIS, AND MANAGEMENT OF PERSISTENT OCCIPITO-POSTERIOR POSITIONS.

Dr. A. W. Russell opened the discussion by reading the following paper:—

The mechanism of labour has always afforded fruitful topics of discussion, and rightly so, for it involves some very important questions of diagnosis and treatment. This remark may, perhaps, be said to apply with special force to the consideration of occipito-posterior positions in presentations of the vertex and notably to the class of cases which forms the subject of the present discussion, for at the present moment we find leading obstetricians expressing opinions diametrically opposed to one another on such a question, for instance, as the necessity for operative interference or the advisability of rotation with the help of the forceps. The area of discussion is perhaps sufficiently limited and clearly defined by the words of the title selected, but I must state at this point what I interpret as the meaning of the word "persistent." I intend to classify as "persistent occipito-posterior presentations" all presentations of the vertex in which the occiput is posterior from the start, or by a process of reversed internal rotation becomes posterior, as sometimes happens, and refuses to undergo the process of anterior rotation naturally and without interference by the time that it passes into the outlet. I shall make no reference to the persistent occipito-posterior position of the after-coming head.

The number of cases in which the occiput is posterior at one stage or another of labour has been variously stated, and it probably exceeds the number usually given. We may take it that at least 20, and probably as many as 30 per cent of all vertex presentations are originally occipito-posterior. Reynolds in Norris's text-book gives a table showing 21 per cent as the proportion of occipito-posterior positions noted at the time that the greatest diameter of the head was in the brim. Clifton Edgar, whose text-book is one of the most recently published, has given a similar proportion. Sir Halliday Croom in a paper published in 1881 stated that out of 414 consecutive admissions into the Edinburgh Maternity Hospital 59 were noted as occipito-posterior positions, or 14 per cent. By far the greater number of these cases, however, ultimately complete their internal rotation into an anterior position and give rise to little more trouble than the ordinary occipito-anterior positions of the vertex. Only a very small

proportion, estimated at 1½ to 4 per cent, persist as occipito-posterior after reaching the pelvic floor. Naegele has stated the proportion as 1 in 73 labours, or 1·37 per cent. Clifton Edgar collected statistics of 2,200 labours and found 89 cases, or slightly over 4 per cent, and in 79 of these, where the full details were given, 46 were primiparæ and 33 multiparæ. It is thus seen that it occurs almost equally in primiparæ and in multiparæ. Varnier on the other hand, in a table of 35 cases gives 8 as primiparæ and 27 as multiparæ. A tendency to recurrence in successive pregnancies has been noted. I was in hopes that I would find in the recent literature of the subject details of series of cases as to the ages of the mothers, the weight of the children, the internal measurements of the pelvis, the nature of previous injuries, &c., which might have thrown fresh light on the subjeet, but so far I have discovered little or nothing. A word may still be said in passing as to the etiology of such cases. The outstanding fact in relation to persistency of the posterior position is the incomplete flexion, or rather partial extension of the head, and among the factors concerned with the production of this partial extension may be included the natural uterine obliquity; disproportion in the size of the child, a large child causing extension at the brim, a small child in the cavity; special roominess, as well as general contraction or other deformity of the pelvis; want of rigidity of the pelvic floor as a result of previous labours or considerable injury; the coming of the second twin after dilatation by the first; obstruction to forward rotation by hand or foot in front; hydrocephalus; uterine or abdominal inertia.

The mechanism of persistent occipito-posterior or "face to pubes" positions.

It is hardly necessary to remind ourselves in this Society that the favourable features of the mechanism of labour in vertex presentations are the descent and engagement of the head in the pelvic brim under the influence of uterine contractions, accompanied by an increase of the natural flexion of the head, so that the smallest diameter of the head, the sub-occipito-bregmatic, comes to lie in one of the oblique diameters of the inlet. Descent and flexion being maintained, rotation of the occiput forwards in the pelvic cavity proceeds as the result of the forces applied, together with the normal shape of the cavity, so that the occiput emerges from the birth canal in the middle line under the pubic symphysis. In the

simple and more numerous cases of posterior positions, the bregmato-cotyloids of Herman, the same mechanism is maintained; anterior rotation of the vertex takes place on reaching the pelvic floor or even in some cases before it, but, as the uterine contractions are often not so regular and strong, and the fœtal head is not usually so well adapted to this position, and anterior rotation, to be complete, requires to be through three-eighths instead of one-eighth of a circle, labour is slower and more exhausting even in the more favourable cases.

With this cursory description of the ordinary mechanism of the simpler forms of anterior and posterior presentations in our minds we have now to consider in what particulars the mechanism of the difficult or persistent occipito-posterior positions differs. Reference has already been made to the maladaptation of the fœtal head to the diameters of the brim in the occipito-posterior positions. The biparietal diameter of the fœtal head now lies in a diameter of the pelvis between the promontory and one of the ilio-pectineal eminences which is considerably smaller than the oblique diameters. The disproportion may only be slight and further descent may, by hitching the forehead slightly against the pubes, correct the commencing extension and so the head will, after all, enter the cavity fairly well flexed, and labour will terminate naturally. If this maladaptation or disproportion is considerable, however, there is less resistance against the descent of the forehead, extension proceeds, and we may even have a brow or a face presentation developed. Even when the head is insufficiently flexed it is possible, but little more, for anterior rotation to take place, but the more usual result is backward rotation of the occiput into the sacral concavity. In such cases the occiput and the sinciput have probably reached the pelvic floor almost simultaneously, if indeed the sinciput has not been first. The most usual result then is rotation backwards of the occiput owing to the prominence and resistance of the ischial spine. As rotation is being completed the pressure on the occiput is lessened and flexion again takes place with further advance of the occiput. Natural delivery in such a position implies an easy fit, strong uterine contractions, and extreme flexion, with considerable and characteristic moulding; but, under even the most favourable circumstances, it involves vastly greater risks to the life of the child and considerable injury to the maternal parts, such as deep laceration of the vagina, complete laceration of the perineum, besides the probability of injury to the uterus itself

from overstretching and thinning out of the lower uterine segment. It is well to contrast somewhat more in detail the mechanism of the simple and these difficult cases. In an occipito-anterior presentation the occiput has only to travel about 2 inches corresponding to the symphysis pubis and it is beginning almost to emerge from the outlet before the shoulders get engaged in the brim. The occiput in the simple rotating occipito-posterior cases has only a somewhat longer spiral of rotation to undertake and it again becomes anterior and the face in due course sweeps the perineum. The case is very different when we have a really difficult, not to say, persistent occipito-posterior position to deal with. If the occiput rotates completely backward it has almost 5 inches of a sacral curve to traverse first of all, and then a further curve of about 5 inches of the stretched perineum, before it emerges and allows the face to appear from behind the pubic symphysis. This necessarily involves not only the engagement of the shoulders and the rest of the trunk at the brim, but their further descent well into the pelvis, and their liability to impaction. Thus, in an extreme case we may have a crowding of parts at the outlet so that we have to add the dorso-sternal diameter of the trunk ($3\frac{3}{4}$ inches) to the fronto-mental diameter of the head ($3\frac{1}{4}$ inches), making a diameter of 7 inches to pass the outlet. It is small wonder then that a very extensive and complete perineal laceration is the result of such a delivery. A serious complication of the mechanism may be noted in passing. Internal rotation may not be completed and we then get a deep transverse position of the head with impaction.

Before leaving the subject of mechanism, it is desirable to refer to a particular lesion of the vagina to which Sir Halliday Croom drew special attention in an interesting paper published in 1881. It is a deep-seated laceration of the vagina at the level of the ischial spine, and it is, as might be expected, usually on the right side. It is apt to leave a discharging sinus which might give rise to trouble, apart from the immediate risk of sepsis through such a lesion. It occurs so frequently in this association that it should always be looked for.

Diagnosis.

The irregular ineffective pains of a prolonged first stage with probably premature rupture of the membranes will suggest in most practitioners' minds the diagnosis of an occipito-posterior position of the presenting vertex. A patient suffering little from such pains is not likely to send for the practitioner till labour has proceeded for some time, and it is of the utmost

consequence that a diagnosis should be made early. The careful practitioner who has visited his patient and examined her before labour has begun, will have already made his diagnosis and warned his patient. In abdominal palpation he has missed the usual smooth continuous convexity of the fœtal back and has felt instead the smaller projections indicating the limbs, while the fœtal heart has been heard in its greatest intensity well out to the side between the ribs and the iliac crest. The head being felt at the brim, he concludes that he has to deal with an occipito-posterior position, and this is confirmed by vaginal examination when he feels the head through the vaginal fornix or, if the os uteri is patulous, he finds the posterior fontanelle and the sagittal suture running forwards from it in one of the oblique diameters.

The refinements of diagnosis are only beginning, however, and it has now to be determined whether there is any degree of extension, as is indicated by the relative position of the two fontanelles with reference to the outlet. Under any circumstances, the simple diagnosis of an occipito-posterior position has become an indication for preliminary or prophylactic treatment, for which the practitioner will probably at once give directions. If labour has just begun it will be his duty to ascertain as precisely as possible the position of the head and the amount of flexion as indicated by the ease or otherwise with which he can reach the bregma or anterior fontanelle. He will, of course, by this time also have estimated in the usual way the pelvic diameters and ascertained any marked lack of proportion between the fœtal head and the birth canal, *e.g.*, contracted or otherwise deformed pelvis, enlargement of the fœtal head, simple or hydrocephalic, &c. He will have to judge of the dilatability of the maternal passages, the effect of the prolongation of labour on the mother as indicated by pulse, temperature, sense of fatigue, strength of pains, &c., and the result to the child of the prolonged and undue compression, affecting the brain or the placental circulation, and recognised by the rate and regularity of the fœtal pulse. Perhaps there is no class of cases that is a greater test of the judgment than this, when the practitioner has to decide as to the necessity for operative interference.

Treatment.

In turning to the treatment of occipito-posterior positions, I cannot do better than begin by quoting from an article by Reynolds.

"In reviewing the mechanism of posterior positions it is at

once apparent that the whole key to the situation is to be found in the degree of flexion presented—that the better the flexion the more certain and the more rapid is the execution of the normal and most favourable mechanism. It is an established fact in practice that in the comparatively few cases in which good flexion is established at the start and maintained to the end, posterior labour is hardly less favourable than anterior; and that the degree of difficulty increases as the degree and persistence of flexion decrease, until we reach the fact that when flexion is lost and is not promptly restored by art, posterior positions invariably yield long, difficult, and exhausting labours for the mother, and a large proportion of stillbirths among the children. It may safely be said that there is no variety of labour in which easily-avoided ill results are so commonly incurred as in posterior positions of the vertex; and there is certainly no subject in obstetrics that better deserves the attention of the student than the means of detecting extension, and of preserving or re-establishing flexion in these cases."

An important part of the treatment is prophylaxis, the prevention of the more serious complications by timely precautions. Little is to be expected from mere mechanical manipulations before labour has set in, but postural treatment should certainly be instituted, even for a week or two before labour, if the condition is discovered. Daily, or twice daily, the patient should assume the knee-chest or knee-elbow position for a few minutes at a time; afterwards reclining for some time on the side to which the occiput is directed.

In considering the proper treatment to pursue when labour has begun, regard has to be paid to the prognosis of difficult and persistent occipito-posterior cases, and in the past this has not been sufficiently emphasised. On the part of the mother, and she undoubtedly is the most important of the two lives concerned, we have to consider the effect of the great prolongation of labour without help on our part, with the consequent exhaustion and increased liability to septic and other complications. Pressure necroses with resulting sloughs, and severe and extensive lacerations of the pelvic floor, are inevitable, and some of these are very readily overlooked at the time, *e.g.*, the deep ischial laceration of the vagina already noted as described by Halliday Croom. On the side of the child it has to be remembered that the mortality is about 10 per cent, and that there is special danger of compression of the head or cord, or interruption of the placental circulation, or even separation of the placenta. The outstanding feature

of prophylactic as well as other treatment of this condition is the maintenance or restoration of flexion of the fœtal head, and this applies to all the different classes of cases.

At this point, while willing to give due weight to the opinions of those obstetricians who have opposed operative help save as a last resort, I wish to emphasise strongly the desirability of saving the mother, if need be even at the expense of the child's life, from those serious lacerations which so often accompany delivery in these cases; and this can be done by the timely but also intelligent use of the forceps before the tissues are so mauled and the mother is so worn out as to incur the risk of complications that would not otherwise arise in connection with the right use of the forceps. If there is little hope of saving the child, the risk to the mother should be lessened by perforation. Symphyseotomy may even be advisable, and it has more than once been resorted to, but I should hesitate very seriously before adding this complication in such a case. The last symphyseotomy that I did was complicated by a persistent occipito-posterior position and a child weighing about $9\frac{3}{4}$ lb., and though the child was born alive and is thriving, the mother is left with a rupture of bladder and urethra, the proper repair of which has still to be faced. The anxiety of a perineal repair is not to be compared with such a complication.

It will keep me clearer in further considering treatment if I follow the divisions recommended by several writers according as the vertex is still above the brim—high cases; or is fully engaged in the brim and in the cavity but has not reached the pelvic floor—medium cases; or is already pressing on the pelvic floor and distending the perineum—low cases. It is now that skill in accurate diagnosis and judgment tell, and it is the practitioner's duty to weigh carefully the whole merits of the case, estimating as precisely as possible the various measurements, the size of the child and its relation to the size of the pelvis, the mother's and the child's vitality as already noted under diagnosis.

1. When the vertex is still above the brim and signs are otherwise favourable, it is certainly best to wait, directing postural treatment in the meantime, and perhaps manipulations to effect rotation in the hope of securing engagement, as described by Herman, should be tried. Failing this, we may go on to perform podalic version, but the increased danger to the child must be remembered, and also the risk to the mother if the lower uterine segment is already thinned out. Personally I would in such cases apply the forceps so as

to bring the head into the cavity, even aiding rotation in this way. The patient will, of course, be deeply anæsthetised by an assistant, and all preparations must be made for an aseptic technique. With the hand in the uterus rotate the occiput forwards, aiding this by abdominal manipulation of the anterior shoulder and even pressure at the fundus to assist in flexion. Apply the forceps. The forceps may be removed later on, and natural delivery encouraged, or it may be re-applied.

2. When the head is in the cavity and persistently occipito-posterior, the amount of extension should be found out and flexion encouraged by pressure with the fingers on the fore-head. A single blade of the forceps may be used to help to bring down the occiput, or better still, the vectis, if it is available; but the additional utility of this proceeding is doubtful. If rotation fails and delivery must now be completed, the forceps must be used, preceded, of course, by perforation if the mother's condition is the only thing that needs to be regarded. As it is at this stage that danger arises specially in the use of the forceps, I may here say what I have to say on the use of the forceps in such cases. An aseptic technique is presumed. The patient is otherwise properly prepared in every detail by disinfection of the genitals, douche if necessary, catheterisation and enema, and the cervix must be either fully dilated or quite dilatable. She should be placed on a table. The diagnosis should now be confirmed after the anæsthetic has been given and the exact position of the head carefully ascertained. Encourage flexion at every opportunity. If the head is still only in the brim a pelvic application of the forceps with an oblique hold of the head may be all that can be accomplished, but lower down in the cavity a cephalic application should be aimed at. Practise traction intermittently and in exerting force begin gently and gradually get stronger in imitation of the uterine pains. The long straight forceps may be preferred by some in such cases, or, better still, the special forceps designed by Milne Murray may be used, but few in ordinary practice will be willing to burden themselves with an extra forceps, and it is fortunate that a more careful and intelligent use of the ordinary axis traction forceps is sufficient to avoid the risks attributed to it. In this connection I may with benefit summarise the directions of Brodhead given in a paper published three or four years ago. He says that the curved forceps becomes in effect straight by carrying the handles towards the thigh of the patient to which the concavity of the pelvic curve looks. Two fingers

of one hand are kept on the vertex and the sagittal suture to note if the head is turning. Grasp the forceps and hold the blades firmly against the sides of the head and rotate in a uterine contraction from posterior to transverse, at the same time carrying the handles downwards and backwards till the concavity of the pelvic curve faces the lateral wall. Hold the head in this position for several contractions and relaxations. The body will usually adapt itself. Then rotate to right occipito-anterior or left occipito-anterior, at the same time carrying the handles further downwards and backwards, so keeping the tips of the blades in the middle of the pelvis and away from the vaginal walls. Hold the hand in this position for a little to let the body adapt itself. It is absolutely necessary here, if anywhere, to avoid the blind mechanical use of the forceps. It must become a direct extension of the operator's hands and be, as it were, in immediate communication with his brain. As the head changes its relations to the pelvis the forceps will probably have to be changed more than once, and may even have to be reversed at one stage of the delivery. It is necessary to emphasise the proper application of the forceps in relation to the fœtal head, the so-called cephalic application, and this involves the previous exact diagnosis of the position of the head. Probably in such cases there is less injury to maternal structures if a solid-bladed forceps is used, but, even in this respect, special watchfulness and readaptation of an ordinary good axis traction forceps to changing conditions will be equally successful. It is quite certain that the happiest results have followed the use of the forceps in such cases when the precautions I have described have been observed, and cases must be remembered where a timely interference in what seemed to be far from hopeful circumstances has been followed by a surprisingly rapid completion of the labour. Rotation, if practised at this stage, must be encouraged rather than forced.

3. If the head is well down on the pelvic floor and even presenting at the outlet and the position remains persistently occipito-posterior, there is little likelihood of the labour completing itself naturally. The extra force expended in the previous stages leaves the patient exhausted, and the undue delay in further progress carries its perils both to mother and to child. In a multipara with relaxed outlet delivery by the forceps in the occipito-posterior position may be effected, but in most cases it will be found to be necessary and to be better practice to apply the forceps accurately to the sides of the fœtal head and encourage gradual rotation, while pulling

intermittently and always maintaining the rotation previously accomplished in the manner described by Brodhead and already noted in this paper.

As this is an introduction to a discussion, I have avoided the quotation and description of illustrative cases, and it has been my object to demonstrate the importance of a clear understanding of the mechanism of labour in occipito-posterior positions, of an accurate knowledge and practice of the various means of diagnosis, and of the avoidance of undue delay in the treatment of such cases by a judicious and intelligent use of the forceps.

Dr. S. Sloan said—There is no need to dwell on the ordinary mechanism of occipito-posterior cases, except to say that rotation takes place because flexion, which precedes it, brings the occiput first to the floor of the pelvis, and, there being more room in front, as well as a slope forward of the pelvic wall at this part of the cavity, the occiput, by the force of the pains, glides forwards, that is, in a direction which is the resultant of the two forces. Owing to the comparative freedom of the sinciput during flexion there is no opposition to this movement on its part. What perversion of this natural mechanism is it which prevents the normal rotation? This normal mechanism assumes a driving force, and the result will of course be, in part, proportional to this force. Thus diminished uterine action will cause perversion of this natural mechanism to the extent of delay. It also assumes an opposing force, and in this instance the opposing force is the resistance of the pelvic wall at or near its junction with the floor of the pelvis, and the absence or the comparative diminution of the resisting force of the opposite pelvic wall on the sinciput. Absence, therefore, or a diminution of flexion will delay or prevent this forward movement of the occiput. The mechanism, therefore, of persistent occipito-posterior positions is the result of diminished flexion and diminished descent of the head. The question then is, what will give rise to these departures from the normal? In the first place, diminished uterine force will delay both. In the second place, certain forms of pelvis will favour one movement, whilst different forms of pelvis will favour the other, and only the normal pelvis—which, let us for the time being admit, may permit of an occipito-posterior position to begin with—will favour both movements. The generally contracted pelvis favours flexion because there is no room for an extended head, whilst a somewhat flattened pelvis will favour extension, not simply because there is sufficient

room in the oblique diameter of the pelvis to permit of this, but also because, the posterior pubic angle being broader in this kind of pelvis, the sinciput is at more liberty to descend.

Rotation, however, though primarily dependent on the flexion, is not necessarily in proportion to it, for whilst in a generally contracted but otherwise normal pelvis flexion is sufficient, there may yet be a difficulty in the rotation due to the sacro-sciatic ligaments being more nearly parallel, that is, less divergent, in the generally contracted pelvis, or in one approaching the male type, and therefore narrower.

These ligaments are, in a normal female pelvis, decidedly divergent, and therefore permit readily the gliding forward movement of the occiput, which movement probably, as a rule, does not take place till the occiput has reached the edge of these ligaments. Moreover, the narrower the outlet the less readily will the occiput rotate forward, since there may be less resistance to its movement in the hollow of the sacrum. The case may then end naturally as an occipito-posterior one, probably necessitating considerable moulding of the head. In such a pelvis, however, even in one of a shape to make anterior rotation practically impossible, the head may be still able to rotate during the expansion of the vulva and perineum. I apprehend, therefore, that rotation may take place above the brim, or between the level of the sacro-sciata ligaments and the vulvar outlet, but at no other part of the parturient canal. This, as will be obvious, has a bearing on the question of management. The only remark necessary to make regarding the difference in the mechanism of the two occipito-posterior positions is that the pressure of even the empty rectum will in some degree prevent the easy descent of the occiput.

Diagnosis.—Presuming that from the position of the two fontanelles with relation to each other, or of one of them with relation to the pelvis if both cannot be felt, the case is obviously an occipito-posterior one, the question of the diagnosis of persistent occipito-posterior position resolves itself into the more or less likelihood of a forward rotation of the occiput and of what is causing the persistence, if this condition is assumed to exist.

What is persistence with relation to occipito-posterior positions? First, there is the time element. If the pains are strong, and the progress not proportional to the pains in an occipito-posterior case, we are safe to assume that the delay is at least in part due to the unfavourable position of the occiput. Next, we have to determine what is the likelihood of a final anterior rotation without undue delay. The degree of flexion

and the degree of descent, combined with the quality of the pains and the rate of the progress, will be the criteria by which we may determine the diagnosis. Failing any one of these, the prospect is to that degree unfavourable with the unaided efforts of nature. If a partial rotation only has taken place, the head remaining for some time in a transverse position, the prospect is still less favourable. Again, the constitutional condition of the woman must be considered, for diagnosis may be said to include prognosis in this case. If in an occipito-posterior case there are evidences of exhaustion, these will necessarily intensify the persistence.

Management.—There may be persistence, yet no management may be required, the rotation taking place by natural means just before the termination of the labour, or the case may end naturally and fairly easily as an occipito-posterior one. The persistence may, however, have become pathological, and then the question of management arises.

A great deal has been said in advocacy of manual interference *per vaginam*, and much credit has been taken for the success of this means. Excepting, however, by aiding flexion, I am one of those who believe that the fingers in the vagina can alone do no good, whilst frequent applications may do much harm. We shall see, however, that bimanual interference, *but at the proper time only*, may, in my opinion, do much good.

Since uterine inertia alone may prevent rotation, anything which may increase this may suffice. Amongst the many means whereby this may be done the forceps are the most certain, as well as the most potent; the kind of forceps to be employed with most success and least damage depending on the position of the head in the pelvic cavity. All, however, that should be aimed at must be descent of the head. No instrument, in my opinion, should be trusted to do more. Any attempt to imitate the mechanism of nature at the particular time by the forceps must fail, and do an amount of damage proportioned to the force used. The head must be allowed to take its own course during traction. The forceps which will meet the case best are those which will, under given circumstances, grasp the head in the most favourable position, and permit of traction in the axis of that part of the parturient canal. If the head lies far up in the cavity, as a general rule the double curved axis-traction instruments will best meet the case at that stage. Low down in the cavity, however, the question is not one of elaborate traction apparatus, but of axis-traction, and the ordinary Simpson's forceps can

do this easily in hands of ordinary skill. Moreover, in so far as the part of the instrument within the pelvic cavity is less bulky, the safer and more efficient will that instrument be. As soon, however, as the head has reached that part of the pelvis in which rotation naturally takes place, a double curve to the instrument is not only unnecessary, but may prove a positive hindrance, possibly by preventing flexion. This danger will be directly proportional to the amount of the pelvic curve, though any curve at all is a certain source of added difficulty. As an illustration of this, a most interesting case which happened in my own practice may with profit be here briefly related. The case is published in detail in the *Glasgow Medical Journal* for May, 1879.

This patient had an interesting obstetric history. There had been three previous labours; all forceps cases I was informed, and the only child born alive had been a small girl. The position of the head in the fourth confinement was right occipito-posterior, but the right parietal bone presented on account of the right hand of the fœtus being doubled up behind its right ear. Labour was protracted, and manual attempts to flex the head were fruitless. Simpson's ordinary double-curved forceps were applied for fifty minutes, partial rotation only taking place, and no progress was made, the forceps apparently preventing complete rotation. Having no straight forceps at hand, I employed strong uterine pressure after removing the forceps, pulling with both hands on the fundus. In a very short time the head passed out in the second position, a large-sized boy being born alive and uninjured. The mother made an excellent recovery.

This case naturally made a great impression on me, and caused me to decide in the future to carry with me always a pair of ordinary straight forceps for use in occipito-posterior cases.

Some years after, two cases occurred in my practice in one week where in both the position was occipito-posterior, and in each case the double-curve forceps similarly failed, and for the same reason; all attempts at rotation or extraction proving futile. The straight forceps were then applied in each instance, and a living child was at once extracted in both cases; rotation taking place without any rotating efforts being made by me.

Assuming, then, that forceps which do not prevent rotation may, as a rule, suffice to bring the case to a normal conclusion, what is the best instrument for this particular purpose?

Some years ago anyone who ventured to hint that no obstretician should trust in every case to one pair of forceps

only, and who questioned the infallibility of the much lauded double-curved axis-traction forceps in every case and in any position of the head, was looked upon as either knowing nothing about the matter practically, or, if this could not be said of him, he was looked on as a man of peculiar views, whom those who "knew that they knew" all about the matter might tolerate in a kindly way as they would one who suffered from some mental aberration. One of the masters of this school was the late Dr. Milne Murray, whose early death was a cause of great grief to me as it must have been to many. Even he, however, came to admit that "the very virtue of the pelvic curve in relation to occipito-anterior cases becomes a more or less manifest vice in relation to occipito-posterior cases, for the grasp of the head in the latter case will be as effective in undoing flexion as it was effective in the former case in increasing it." He therefore advised a modification of the curve, approximating the instrument to the ordinary straight forceps. So firm, however, was his belief in the absolute necessity of having axis-tractors applied to every variety of midwifery forceps, that he added them to this instrument also.

It will be obvious that the nearer this instrument approaches the straight pattern, the more useful will it be, or rather the less harmful. Two of its faults, however, are its great weight—over 2 lb.—and the fact that it has traction rods added to it. For whatever may be said in favour of the advantages of axis-tractors in the high operation, there is much less need of them when the head is in the cavity, whilst that their presence may do no harm when the head is at the outlet is all that can be said in their favour under such circumstances. It is obvious, also, that in cases of special difficulty, that is, when the head is in the transverse diameter of the pelvis, necessitating the application of the blades of the forceps in the antero-posterior diameter of the pelvis, the line of traction by the rods must be not backwards and downwards, as it ought to be and as it will be with the ordinary straight forceps, but in a line exactly at right angles to this. Professor Murdoch Cameron's forceps will be most suitable for such a case, especially if the head were high in the cavity, since it will grasp the head in the desired diameter and make the traction in the desired direction. One cannot, however, carry all the various patterns of forceps in one's obstetric bag, though each variety might be of excellent service in special cases.

Dr. Murray's objection to the ordinary straight forceps is

that, though they favour flexion, yet they take their grip too far back on the head, and, therefore, are liable to slip off. Should the forceps slip over the head, however, it would only show that the head was at the time too high for the use of that particular instrument, or that a premature attempt on the part of the operator had been made to carry the handles forward. This accident, however, would prove the incapacity not of the instrument but of the operator.

Again, if these forceps of Dr. Murray's are used when the head is only moderately low down and in the oblique diameter of the pelvis, the tendency to slip back will be enormously increased by the use of the tractors. Unquestionably no one pattern of forceps can in a severely impacted occipito-posterior case serve the best interests of mother and child throughout the case. The best instrumental treatment is to get the head by means of the double-curved forceps as low down as necessary for rotation, or as low down as to enable the straight forceps to take a proper grasp of the head, and then to apply the medium straight forceps in the transverse diameter of the head, and employ traction alone. If delivery is not then easily accomplished, uterine pressure, combined with bimanual rotation of the body and head of the child, will sometimes at that stage give immediate and most gratifying results. In difficult cases this may require the aid of a skilled assistant. I am convinced, however, that the straight forceps will often succeed where all other measures have failed, and where craniotomy seems the only measure left.

I have little to say regarding absolute occipito-posterior persistence, except that flexion must be aided by the hand or by the forceps, and the soft parts allowed to dilate very slowly. I think, as a rule, the latter is best managed by keeping the forceps on during extraction.

The question of the proper time for interfering in each individual case will depend on so many things that no great advantage would follow an attempt to formulate a series of propositions. I shall only say that the less the skill of the obstetrician the less ready should he be to interfere. I show you the straight forceps I use; they are of medium length, and weigh only 14 oz.

Dr. Stark considered that occipito-posterior positions of the head were much more frequent than was generally supposed. Many right posterior positions become right anterior during the second stage as rotation has occurred, and if the diagnosis is made only at the end of the second stage these cases would be

diagnosed as occipito-anterior, whereas they are really occipito-posterior.

The condition ought to be diagnosed during pregnancy, and if a careful examination—abdominal and vaginal—were made then, and it was ascertained that the position of the head was occipito-posterior, the accoucheur could try postural methods before labour began, or be prepared to make efforts to rectify the position after labour had started by manual, instrumental, or postural methods. A persistent posterior position of the head furnishes, in the majority of instances, the worst examples of vaginal and perineal lacerations, and ought to be rigorously prevented.

Dr. Lindsay thought that the discussion might have been limited with advantage to uncomplicated cases—to the question what should be done when an occipito-posterior position of the fœtal head is found in a parturient who is known to have had one or more normal labours. He agreed as to the need of early diagnosis of the complication. While regularly practising abdominal palpation and palpation of the cranial sutures, he could not, in many cases, rely on the results of these methods of examination with complete assurance. When, however, he found a certain peculiar formation of the lower uterine segment which he considered at least highly suggestive of an occipito-posterior position of the head, he passed his hand into the uterus to make sure. If a faulty position were found, an attempt could be made to rectify it by rotation of the head and shoulders. Should the malposition be resumed, as frequently happened, he completed the dilatation of the os and applied forceps.

The risks of early delivery by forceps were, in his opinion, less than the risks attending a waiting policy. This was the procedure which he had come to adopt in unassisted general practice.

Dr. Munro Kerr emphasised the importance of diagnosing the existence of an occipito-posterior presentation, and pointed out how the condition might be recognised in the different stages of labour. He indicated how, during pregnancy and early in labour, it could only be recognised by abdominal palpation; how, when the os was sufficiently dilated, it could be appreciated by the ease with which the anterior fontanelle was felt; and how, still later, it should be suspected when there was undue delay in a parturient whose pelvis was of normal dimensions. He pointed out, further, how even at a

later stage an opportunity might be given of recognising the malposition, for when forceps are applied to an occipito-posterior position, and attempts made at traction, the vaginal outlet gapes unduly posteriorly without the head coming down on the perineum.

Dr. Kerr had nothing to say with regard to the etiology of the condition; he had found it in all varieties of pelvis, and with all sizes of children. He had frequently seen the presentation exist for weeks before labour.

In respect to treatment, Dr. Kerr had found it undesirable to make early attempts at rectification. He had frequently, by abdominal manipulations and by postural treatment, attempted to correct the position, but had invariably failed. It was his practice now always to leave cases of occipito-posterior presentation severely alone, and only to operate when the second stage had been prolonged, and delivery became necessary in the interests of the mother and child.

Dr. Caskie said—I have listened with interest to the paper read by Dr. Russell, and to the remarks made by the other speakers. As a rule, in country practice there are fewer opportunities than in hospital practice of examining cases before labour sets in, or, at least, before the head enters the cavity of the pelvis.

The difficulty of diagnosing these cases by detecting the position of the fontanelles has been alluded to by one of the speakers, and my experience coincides with his regarding the situation of the presenting part of the vertex.

Independent of the position of the fontanelles, there are three characteristics which may cause one to suspect occipito-posterior presentation, viz.:—

1. The pains are often continuous, are usually referred to the front, and are more irritating and "cutting," perhaps owing to the pressure of the forehead on the pubis.

2. The os and presenting part are situated more to the front, and the former dilates more slowly, as the membranes do not usually protrude.

3. When the forceps are applied and traction is made, the posterior wall of the vagina bulges so as almost to occlude the passage, and if the pressure is severe, long-continued venous oozing occurs from the surface.

It is probable that in many cases rectification takes place naturally, but it has been my practice when such a presentation was suspected, and no progress was made for two hours to complete the delivery with the forceps. In the case of a

multipara with a history of normal labours it seems doubtful to me if the attempt to promote rotation is justifiable.

The late Dr. Barnes' opinion, with which I agree, is that one should in these cases be the minister of nature, and not attempt to rectify the position.

In thirty-five cases of midwifery in which the child was born with face to the pubis of which I retain notes, seven were primiparæ and twenty-eight multiparæ. All of the primiparæ were delivered instrumentally, and all the children were living, one being moribund. Of the multiparæ, seventeen were delivered naturally and eleven instrumentally. Of those delivered naturally all the children were alive, one of them weighing 14 lb. 2 oz. Of those delivered by the forceps, all the children but one were alive, the dead child weighing 11 lb. 4 oz.

The perineum was sutured in two cases, both being primiparæ, the first in the case of a woman above 40 years of age who had a convulsion. As the head rested on the perineum the laceration in the second case was caused by the hysterical behaviour of the mother while the head was being extracted.

It may be interesting to know that in none of the cases was chloroform administered, that the assistant was usually an uncertificated nurse, and the instruments employed were Simpson's long straight forceps, which I have found suitable in all cases which I have been called to attend.

In answer to the President, I have never required to perforate in occipito-posterior cases.

The *President* said the hour was too late for him to enter into any discussion of the question. The only contribution he would make would be merely to recall the fact that many years ago, in a paper read to the Society, he had related his experiences with the long straight forceps, which in a series of 3,000 cases of midwifery he had invariably used where forceps were needed in preference to forceps with a pelvic curve. In occipito-posterior cases especially the straight forceps had a marked superiority over the curved, even when axis-traction was added. The straight forceps itself was an axis-traction forceps.

Dr. A. J. Wilson said—I think I am right in saying there is a greater risk of laceration of the perineum in occipito-posterior presentation, and that the so-called "central tear" of the perineum is more liable to occur when the occiput is posterior. I was unfortunate enough to have a case lately—a persistent

occipito-posterior presentation in a young primipara—in which a severe laceration of the central variety took place. I applied the forceps in the usual way (Neville's), and carried the handles well forwards to get the occiput delivered, but quite suddenly the perineum gave way just in front of the anus, and the head appeared through the laceration carrying the forceps with it, and I had hardly time to get the blades out of the way before the child was delivered *through the laceration.* The anterior and posterior boundaries of the perineum remained intact, and the laceration began in front of anus and ran obliquely forwards to the left side of the fourchette and fully 2 inches beyond that point. The tear was carefully sutured, but the sutures had to be removed on account of sloughing. However, with rest in bed and frequent douching and bathing of the parts with a weak solution of perchloride, rapid healing took place.

Possibly the laceration might have been prevented by an earlier application of the forceps.

Dr. Russell replied.

Meeting III.—20th December, 1905.

The President, Dr. J. K. Kelly, *in the Chair.*

I.—SPECIMENS.

A. By Dr. Balfour Marshall.

Placenta and membranes from a case of uniovular twins, showing velamentous insertion by both cords.

B. By Dr. J. K. Kelly.

1. Double pyosalpinx, showing complete fusion of tubes and ovaries.
2. An early stage of hydrosalpinx.

C. By Dr. S. J. Cameron.

Stereoscopic photograph of twin extra-uterine pregnancy.

II.—THREE CASES OF (SO-CALLED) DOUBLE UTERUS, WITH A TABLE OF ONE HUNDRED COLLECTED CASES.

By Dr. G. Scott Macgregor.

The condition usually, though erroneously, described as double uterus is less uncommon than has generally been supposed, and raises questions, not only of scientific interest, but of practical importance. It affords, for example, the only reasonable explanation of super-fœtation and of cases such as have occasionally been recorded in which a few hours after a curetting of the uterine cavity the patient aborts.

I purpose in this communication to relate three cases of double uterus that have occurred under my own observation, and then to call attention to a series of one hundred cases that I have collected and tabulated, with the view of ascertaining whether there were any signs or symptoms sufficiently constant to aid in the diagnosis of the condition. And, lastly, I have appended a list of references to these cases that I trust may be useful to future workers.

It is unnecessary for me to go into the question of classification, especially as I agree with Ballantyne that "it is impossible clinically to separate cases of uterus didelphys from those of uterus bicornis." Nor need I stay to call attention to the fact that conditions which come under the head of abnormalities in the human female are natural to some of the lower mammalia. I will therefore proceed at once to the relation of my own three cases.

The first case occurred so far back as 1889, while I was acting assistant to Sir Halliday Croom in the Edinburgh Royal Infirmary. I shall give it as I have it noted in my case-book.

Mrs. D., æt. 35 years, was sent into the Edinburgh Royal Infirmary on 18th January, 1889, by Dr. Cullen, St. Boswells. She complained of a swelling in the abdomen and constant bleeding. In September, 1888, she had a severe hæmorrhage, for which she could assign no cause as she had been perfectly regular up to that time. For six weeks afterwards she was quite well. Another severe hæmorrhage, however, followed. Dr. Cullen says that there was no evidence of an abortion. She now began to have irregular hæmorrhages, on one occasion so severe as to necessitate plugging of the vagina, and for

the fourteen weeks preceding her admission the patient had "never been dry." As the sound passed 5 inches and there was a distinct and increasing swelling, Dr. Cullen advised her removal to the infirmary. She had always enjoyed good health. Menstruation began at 14 years, was of the 28-day type, was unaccompanied with pain, and lasted from three to four days. She had had seven children (the youngest being 2 years of age), and one miscarriage, eight years ago, at the fifth month. Her labours had been normal.

On vaginal examination the following points were made out:—Vagina roomy; cervix fissured and œdematous; a fairly hard resistant tumour, continuous with the uterus and lying over to the right side, about the size of a four or five months' pregnancy, could be made out bimanually. Sound passed 5½ inches. For the next few days this case was discussed in all its bearings by several members of the staff, and it was ultimately agreed that operation was the proper course. On the day previous to that fixed for the operation, it occurred to me to make one more attempt at a satisfactory diagnosis by making a thorough and exhaustive examination by auscultation over the swelling, when I was at last fortunate enough to make out the faint beat of a fœtal heart. My chief happened at that moment to come in. He, too, heard the fœtal heart-beat, and in place of operating he sent the patient home next morning, the diagnosis being "pregnancy in bicornuate uterus." This was subsequently fully corroborated by Dr. Cullen at her confinement a few months later.

The next case was that of a young unmarried girl, æt. 17, who had never menstruated. On 24th March, 1897, I was asked to see this patient in consultation. She had been suffering from acute abdominal pain, so intense at times as to make her cry out. With the exception of a slight attack of rheumatism twelve years previously, she had always enjoyed good health. She had never menstruated, nor had there ever been any molimen, or sense of discomfort of any sort at stated periods. On examination of the abdomen, a large tumour, sausage-shaped in form, could be palpated, lying in the abdomen immediately below and to the left of the umbilicus, and a slightly smaller tumour, but of somewhat similar shape and intimately connected with the former, could be felt passing to the right side. On examination *per rectum*, a large, soft swelling was felt bulging the rectum inwards. The hymen was imperforate. I incised the hymen and drew

off about two pints of thick coffee-coloured menstrual fluid. Subsequently, on examination *per vaginam*, a double-horned uterus was felt bimanually, the left horn somewhat larger than the right.

The third and last case was brought under my notice on 16th May, 1905, by Dr. Paul Stewart, who asked me to examine a patient of his in whom he had diagnosed "uterus didelphys." The notes of the case are as follows:—

Mrs. J., æt. 30 years, married for nine months. Menstruation regular, 28-day type; duration, six days; no pain. There is no dyspareunia; she experiences, however, a bruised sort of feeling after coitus. No miscarriages and no pregnancies; no backache; some leucorrhœa. Has always enjoyed good health; only complains of a slight pain sometimes in her right side. She is a bright, intelligent woman, well nourished and well developed.

She was anæsthetised, and the following points were noted:—About an inch from the vulvar cleft the lower border of a septum was encountered by the examining fingers, dividing the vagina into two separate compartments, the left compartment being if anything more patulous than the right. At the vaginal roof of each compartment a small nulliparous os was easily felt, while bimanually one could, with the greatest ease, map out each individual horn, extending the one to the left side and the other to the right side of the pelvis, the left horn being if anything a little larger and more developed than the right. The ovary of the left side was likewise palpated, but was much smaller than the right ovary, which could be felt to be prolapsed and tender. The sound passed about 3 inches into the left horn; less into the right. The two cavities were separate and divergent. The bimanual examination conclusively demonstrated two separate and distinct uterine bodies independently movable; only a fold of peritoneum seemed to link the two cervices.

Such, then, is a *résumé* of the various cases that have come under my own notice.

I shall now briefly speak on the practical and utilitarian aspect of this most interesting subject. Do such conditions predispose to sterility? and if not, what are the risks of pregnancy? To enable one to form a fairly impartial conclusion regarding these questions, it occurred to me to collate and

tabulate a hundred cases from the literature bearing on this particular subject, which I accordingly have done, and have drawn them up in the form of a table. The principal points I have grouped under their particular headings, so far as I could glean from the various records of each case, viz., age of patient, number of children, menstruation, character of the labour, vaginal condition, and remarks, if anything particular was noted, so that he who runs may read. The following analysis of these hundred cases may assist one in forming a prognosis should such a case present itself.

Of the first 14 cases mentioned in these tables (1835–1882), 8 cases died from peritonitis following the operation on the imperforate hymen with retained menstrual products. One can, therefore, understand the reason of the emphasis with which our teachers inculcated the necessity of the strictest aseptic measures being carried out in this seemingly simple operation.

I shall here summarise the leading characteristics brought out by these tables. Out of these 100 cases, 30 were unmarried, while 70 were married women. Two out of the 30 unmarried women had had abortions. Of the 70 married women, 14 were non-parous, while 56 were parous; of these 56, 14 aborted and 44 went to full time. From these 44 women there were 96 children, while out of the labours of these there were 2 Cæsarean sections, 2 hysterectomies, 4 forceps cases, and 36 normal labours.

In only 71 cases is there any reference to menstruation; 58 were regular, 8 were irregular, while 5 had amenorrhœa and 13 dysmenorrhœa. In 38 cases there is noted the size of each uterine horn; in 17 cases the left was the larger, the right was the larger in 13 cases, in 8 they were equal, while 1 was an infantile uterus didelphys.

We therefore gather from a study of these cases that the presence of such malformations does not materially lessen the chances of impregnation, except where the genital canal is completely occluded at some point, and that delivery usually occurs without any special danger or difficulty, except when the fœtus is held in the rudimentary horn of a markedly double uterus. In such a case one may have the danger of rupture of the uterine wall; or there may be no dilatation of the imperfectly developed cervical canal; or, again, it may be a powerless labour from the lack of sufficient contractile force in the uterus itself. Any one of these conditions may call for surgical interference.

ONE HUNDRED COLLECTED CAS

No.	Date.	Observer.	Age.	No. of Children.	Larger Half of Uterus.	Condition for which Reported.	Menstruatio
1	1835	Leroy.	19	S.	Right.	Hæmatometra.	Regular.
2	1854	Décès.	16	S.	..	Hæmatometra and hæmatocolpos.	Regular.
3	1857	Santesson.	18	S.	..	Unilateral hæmatometra; double uterus and vagina.	Never menstruated.
4	1862	Beronius.	21	S.	..	Double uterus and vagina; right hæmatometra and hæmatocolpos.	Never menstruated.
5	1864	Simon.	15	S.	..	Hæmatometra and hæmatocolpos.	Three perio regular.
6	1871	Breisky.	..	S.	..	Pyometra and pyocolpos.	..
7	1871	Neugebauer.	19	S.	..	Hæmatometra with double uterus.	..
8	1874	Stande.	..	S.	Left.	Right hæmatometra and hæmatocolpos.	..
9	1876	Näcke.	20	S.	..	Unilateral hæmatometra and hæmatocolpos; uterus bicornis with double vagina.	Regular.
10	1877	Benicke.	28	1	Left.	Pregnancy left half.	..
11	1878	Sotschawa.	26	1	Equal.	Pregnancy in both halves.	..
12	1880	Freudenberg.	16	S.	Left.	Hæmatometra and hæmatocolpos.	Irregular.
13	1880	Doléris.	..	M.	..	Uterus bicornis.	..
14	1882	Thomas.	39	M.	..	Hæmatometra; uterus bicornis.	Regular.
15	1882	Galabin.	15	S.	..	Double uterus; hæmatocolpos lateralis.	Regular.
16	1883	Weist.	28	1	Left.	Double uterus and vagina.	Regular.
17	1883	Sänger.	..	2	Right.	Pregnancy in the rudimentary horn of a uterus duplex.	Regular.
18	1883	Henderson.	38	5	..	Uterus bicornis.	Regular.
19	1884	Cleveland.	40	10	..	Double uterus with deciduous membranes.	Regular.
20	1884	Heitzman.	23	S.	Left.	Uterus and vagina duplex.	..

(SO-CALLED) DOUBLE UTERUS.

Dysmenorrhœa.	Character of Labour.	Vaginal Condition.	Remarks.	No.
...	..	Not mentioned.	Death from peritonitis following vaginal puncture.	1
...	..	Two separate vaginæ.	Death from peritonitis following vaginal puncture.	2
..	..	Two separate vaginæ.	Death from peritonitis.	3
..	..	Two separate vaginæ.	Death from peritonitis.	4
..	..	Two separate vaginæ.	Left occluded vagina incised with complete relief.	5
..	..	Two separate vaginæ.	Permanent relief followed slitting the septum.	6
..	..	Two separate vaginæ.	Death from peritonitis following vaginal puncture.	7
..	..	Left vagina normal; right occluded in the middle.	Discovered at the laparotomy.	8
..	..	Two separate vaginæ.	Death from peritonitis.	9
..	Narrow pelvis; forceps; extraction of placenta.	Two separate vaginæ, left rather wider.	..	10
..	Previous labours normal.	Two separate vaginæ, equal size.	..	11
..	..	Single vagina.	Death from peritonitis.	12
..	..	..	No symptoms given.	13
evere.	..	Vagina single.	..	14
evere.	..	Vagina single	Death from peritonitis.	15
evere.	Labour normal; forceps at outlet.	Double vagina.	..	16
..	..	Vagina single.	The previous year Sänger had removed the right pregnant horn at seven months.	17
..	Labours normal.	Vagina single.	..	18
..	Labours normal.	..	The deciduous membranes usually followed the labour, from 30 hours to 3 days, with violent uterine contractions, and with most severe constitutional symptoms.	19
..	..	Two separate vaginæ, left larger.	..	20

ONE HUNDRED COLLECTED CASES C

No.	Date.	Observer.	Age.	No. of Children.	Larger Half of Uterus.	Condition for which Reported.	Menstruation
21	1885	Lane.	30	M.	..	Double uterus; double pregnancy.	..
22	1885	Macdonald.	23	1	..	Pregnancy in left horn of double uterus.	Regular.
23	1886	Netzel.	23	M.	Left.	Pregnancy in a rudimentary horn, with an imperforate cervix.	Regular.
24	1887	V. Engel.	30	1	Right.	Pregnancy in right half of double uterus.	Regular.
25	1887	Strauch.	22	1	Right.	Double uterus; double vagina.	Regular.
26	1888	Dunning.	37	M.	Right.	Uterus duplex and vagina duplex.	Irregular an scanty.
27	1888	Donald.	28	M.	..	Uterus duplex and vagina duplex.	Regular.
28	1888	Las Casas.	22	S.	Right.	Pyocolpos (L.).	Irregular·
29	1888	Tauffer.	38	3	Equal.	Uterus duplex; vagina duplex.	Regular.
30	1888	Kiderlen.	33	M.	Left.	Bicornate uterus.	Regular.
31	1889	Cullen.	37	7	..	Uterus bicornis.	Regular.
32	1889	Routh.	24	3	Right.	Double uterus; double vagina.	Regular.
33	1889	Cordorelli Francaviglia.	18	M.	..	Uterus duplex; vagina duplex.	Regular.
34	1889	Currier.	25	5	Equal.	Bicornate uterus.	Regular.
35	1890	Althen.	31	1	Equal.	Uterus duplex; vagina duplex.	Regular.
36	1890	Gusserow.	21	S.	..	Uterus duplex; pyocolpos lateralis and pregnancy.	Irregular.
37	1890	Wells.	..	M.	Left.	Pregnancy in the right cavity of a bilocular uterus; abortion.	..
38	1890	Chapin.	28	M.	..	Uterus septus.	..
39	1890	Dodge.	37	M.	..	Double uterus and vagina, with pregnancy.	..

-CALLED) DOUBLE UTERUS (*continued*).

Dys-enorrhœa.	Character of Labour.	Vaginal Condition.	Remarks.	No.
..	Tedious labour; comatose for hours; both children born dead.	Vagina single.	..	21
..	Normal.	..	Hysterectomy for supposed rapidly growing fibroid.	22
..	Hysterectomy; macerated fœtus.	Single.	Corpus luteum in left ovary.	23
..	Forceps.	Vagina double; vulva double.	Double vulva, urethra, bladder, vagina, and uterus; no symphysis pubes; the uterine halves menstruated separately.	24
ight.	Obstruction by vaginal septum.	Two separate vaginæ, the left narrow.	Pregnancy in the right uterine half.	25
..	Normal.	Two separate vaginæ.	..	26
.	Abortion at second month.	Vagina double.	Menses present during pregnancy.	27
..	..	Right vagina normal; atresia of left half.	..	28
..	First two normal; third obstructed by right retroverted half.	Two separate vaginæ, equal size.	Pregnancy in the left uterine half.	29
..	..	Two separate vaginæ, about equal.	Abnormality discovered by accident.	30
..	Normal.	..	Supposed bleeding fibroid.	31
..	Normal.	Septum probably torn through at first labour; vagina now single.	Abnormality discovered by accident.	32
..	..	Double vagina.	..	33
..	Labours tedious; last three, breech presentations.	Vagina single.	..	34
..	Abortion at four and a half months; retained placenta.	Vagina double, equal size.	Double pregnancy.	35
ea.	Abortion.	Vagina double.	..	36
..	Abortion.	..	Bilocular uterus with a right rudimentary horn.	37
..	Abortion at sixth month.	..	..	38
..	Normal.	Vagina double.	Menstruated regularly from right uterine half during pregnancy; vaginal septum intact after delivery.	39

ONE HUNDRED COLLECTED CASES 0

No.	Date.	Observer.	Age.	No. of Children.	Larger Half of Uterus.	Condition for which Reported.	Menstruation.
40	1890	Elbing.	..	1	..	Lithopœdion in left horn of a double uterus.	..
41	1890	Landau.	23	M.	..	Pregnancy in a rudimentary horn of a uterus bicornis.	Regular.
42	1891	Scialdoni.	23	S.	..	Uterus duplex; vagina duplex.	Regular.
43	1891	Nitot.	34	M.	..	Uterus duplex; vagina duplex.	Regular.
44	1891	Broome.	..	1	..	Uterus bicornis; pregnancy in the left horn.	..
45	1891	Galabin.	42	S.	Left.	Uterus didelphys.	Menorrhagia.
46	1892	Tannen.	26	M.	..	Uterus duplex.	Regular.
47	1892	Rossa.	24	2	Equal.	Uterus duplex; vagina duplex.	..
48	1892	Halter.	26	M.	Equal.	Uterus didelphys; hæmatocolpos; hæmatometra; hæmatosalpinx.	Regular.
49	1892	Von Sicherer.	18	S.	..	Uterus bicornis; bicollis; pyometra; pyocolpos lateralis.	Regular.
50	1892	Berlin.	15	S.	..	Uterus didelphys; atresia of right cervical canal.	Regular.
51	1892	Giglio.	25	M.	..	Uterus duplex; vagina duplex.	Regular.
52	1892	Giglio.	26	S.	..	Uterus duplex; vagina duplex.	Regular.
53	1892	Stoll.	24	M.	Equal.	Pregnancy in a uterus bicornis.	Regular.
54	1892	Winter.	25	1	..	Uterus bicornis; pregnancy in the rudimentary horn.	Regular.
55	1893	Mundé.	23	S.	..	Uterus septus; vagina duplex; right hæmatocolpos and hæmatometra.	Regular.
56	1893	Cullingworth.	28	M.	Right.	Uterus bicornis; hæmatometra.	..
57	1893	Leuf.	18	S.	..	Uterus bicornis.	..
5	1893	Edebohls.	26	1	..	Uterus bicornis.	Regular.
59	189	Holzapfel.	25	1	Right.	Uterus duplex; vagina duplex.	Irregular.
60	1893	Mundé.	25	M.	Right.	Pregnancy in right side of uterus septus.	..

-CALLED) DOUBLE UTERUS (*continued*).

Dys-norrhœa.	Character of Labour.	Vaginal Condition.	Remarks.	No.
..	Normal.	..	Lithopœdion discovered during the second confinement.	40
ı.	Normal (previous labour).	..	Recovery uneventful.	41
..	..	Vagina double.	..	42
..	..	Vagina double.	..	43
..	Normal.	..	Uterus bicornis was discovered at a laparotomy for removal of a parovarian cyst.	44
..	..	Vagina double.	Fibroid tumour in left cervix uteri.	45
..	.	..	Menstruation occurred only from left uterus.	46
..	Abortion at four and a half months.	Vagina double, equal size.	..	47
ı.	..	Two separate vaginæ, with atresia of the right vagina.	..	48
ı.	..	Vagina double; atresia of right vaginal half.	..	49
onising.	..	..	Autopsy showed two completely separated uteri.	50
..	..	Vagina double.	..	51
..	..	Vagina double.	..	52
..	Abortion.	..	..	53
..	First labour normal.	..	Laparotomy showed rupture of body of horn.	54
..	..	Vagina double; atresia of right vagina.	..	55
..	..	..	Discovered by laparotomy.	56
..	Miscarried twice.	Vagina double.	Vaginal septum deficient from 1 to 1½ inch from cervix.	57
..	Normal.	..	Discovered at curetting.	58
ı.	Obstruction by right retroverted half.	Right half of vagina normal; left originally occluded below.	..	59
..	Abortion.	..	Discovered by laparotomy.	60

ONE HUNDRED COLLECTED CASES 0

No.	Date.	Observer.	Age.	No. of Children.	Larger Half of Uterus.	Condition for which Reported.	Menstruation.
61	1893	Mundé.	26	2	..	Uterus duplex; vagina duplex.	..
62	1893	Kleinwächter.	31	4	Left.	Uterus bicornis.	Regular.
63	1893	Senft.	31	M.	..	Incarceration of gravid bicornate uterus.	Regular.
64	1893	Kochenburger.	27	M.	Left.	Dyspareunia.	Regular.
65	1894	Löhlein.	18	S.	Left.	Right hæmatocolpos and hæmatometra.	Regular.
66	1894	Merttens.	26	M.	Left.	Uterus bicollis; atresia of one cervix.	Irregular.
67	1894	Routh.	24	3	Right.	Uterus bicornis; vagina duplex.	Regular.
68	1894	Hochstetter.	23	M.	..	Uterus duplex; vagina duplex.	..
69	1894	Galabin.	19	S.	..	Rudimentary uterus; didelphys.	Amenorrhœa.
70	1894	Von Dittel.	..	1	Left.	Pregnancy in left uterine half.	..
71	1894	Holländer.	33	7	..	Pregnancy in a uterus accessorius.	Regular.
72	1894	Knauss.	31	2	..	Uterus bicornis; vagina duplex.	..
73	1894	Werder.	18	S.	Left.	Right hæmatocolpos and hæmatometra.	Regular.
74	1895	Sprigg.	36	S.	Right.	Bicornate uterus.	Regular.
75	1895	Edebohls.	26	M.	..	Uterus bicornis.	Regular.
76	1895	Giles.	31	1	Left.	Uterus didelphys.	Regular.
77	1895	Tschudy.	30	1	..	Uterus didelphys.	Regular.
78	1895	Arnold.	22	2	..	Uterus septus.	Regular.
79	1895	Rossier.	..	..	..	Uterus didelphys.	..
80	1895	Galabin.	25	M.	..	Fœtation in rudimentary horn of uterus.	Regular.
81	1896	Lewers.	17	S.	..	Double uterus; hæmatometra.	Amenorrhœa.
82	1896	Hauser.	23	M.	..	Uterus duplex; vagina duplex.	Regular.

)–CALLED) DOUBLE UTERUS (*continued*).

Dys-menorrhœa.	Character of Labour.	Vaginal Condition.	Remarks.	No.
..	Normal.	Vagina double; right longer.	Right half of uterus contained a fibroid.	61
..	Normal.	..	..	62
..	Abortion at three and a half months.	..	Death occurred from sepsis.	63
es.	..	Vaginas separate and both narrow.	..	64
es.	..	Vagina double; right occluded below.	Discovered by laparotomy.	65
..	..	Vagina single.	The upper part of the vagina was separated into two pockets; in each pocket a cervix was found.	66
..	Normal.	Remains only of a vaginal septum.	..	67
..	Forceps.	Vagina double.	Brought in eclampsia; convulsion appeared first and second day following delivery; death.	68
..		Vagina absent.	Discovered by laparotomy.	69
..	Normal.	Vagina double; left larger.	..	70
..	Normal.	..	Discovered by laparotomy; the pregnant uterus had no annexa; the uterus with tubes and ovaries were situated behind the pregnant one.	71
..	Normal.	Vagina double; right larger.	..	72
..	..	Vagina double; right occluded below.	Discovered by laparotomy.	73
..	..	Vagina double.	Writer states that she menstruated one month from one uterine half, the other month from the other.	74
..	..	..	Discovered at curetting.	75
..	Normal.	Vagina double; septum destroyed at time of labour.	..	76
es.	Cæsarean section.	..	..	77
..	Normal.	..	Second child delivered by version; stillborn.	78
..	..	Vagina double.	..	79
..	Abdominal section; left horn with fœtus and annexum removed.	..	The right horn with its annexum was left; two years later she had a normal pregnancy.	80
..	..	No vagina.	An artificial vagina was made and kept open by bougies and a pessary.	81
..	Had four miscarriages.	Vagina double.	..	82

ONE HUNDRED COLLECTED CASES O

No.	Date.	Observer.	Age.	No. of Children.	Larger Half of Uterus.	Condition for which Reported.	Menstruation.
83	1896	Truzzi.	40	4	..	Uterus bicornis; vagina duplex.	Irregular.
84	1896	Edge.	34	1	..	Uterus septus completus.	Regular.
85	1893	Bornhard.	26	M.	Infantile.	Uterus duplex; vagina duplex.	Regular.
86	1897	Sibut.	17½	S.	..	Double uterus; double vagina.	Regular.
87	1897	Tombleson.	..	2	..	Uterus bicornis.	..
88	1897	Prevost.	..	4	..	Uterus duplex.	..
89	1898	Kendall.	22	2	..	Uterus septus.	Regular.
90	1898	Winter.	23	S.	..	Hæmatometra in rudimentary horn of a bicornate uterus.	Regular.
91	1898	Schlutius.	21	S.	Right.	Uterus septus; vagina duplex.	Irregular.
92	1899	Wells.	14½	S.	..	Double uterus; double vagina; bilateral hæmatometra and hæmatocolpos.	Amenorrhœa.
93	1899	Wells.	28	3	Left.	Pregnancy in the right horn of a bicornate uterus.	Regular.
94	1899	Blume.	26	1	..	Uterus bicornis; vagina duplex.	..
95	1899	Gardini.	..	1	..	Pregnancy in a woman with a double uterus and double vagina.	..
96	1899	Drouillard.	35	5	..	Uterus bicornis.	Regular.
97	1899	Serejnikoff.	.	M.	.	Pregnancy in the rudimentary horn of a bicornate uterus; viable fœtus.	..
98	1900	Winn.	..	M.	..	Uterus bicornis.	..
99	1904	Lyle.	31	M. 1 child.	..	Interesting case of Cæsarean section at full term. Patient had two uteri and two vagi The second uterus was myomatous, was impacted in the pelvis obstruct labour.	..
100	1906	Fordyce.	28	M.	Equal.	Bicornate uterus.	Regular.

D-CALLED) DOUBLE UTERUS (*continued*).

Dys-menorrhœa.	Character of Labour.	Vaginal Condition.	Remarks.	No.
.	Normal.	Vagina double; torn at labour.	..	83
es.	Normal.	..	..	84
..	..	Vagina double.	..	85
..	..	Vagina double.	..	86
..	Normal.	..	..	87
..	Forceps first labour; others normal.	..	..	88
..	Normal.	..	..	89
es.	..	..	Operation for dermoid when the condition was discovered.	90
es.	..	Vagina double.	Sound in uterus showed a perforation about the middle of the uterine septum.	91
..	..	Vagina double.	Menstruation regular after operation.	92
..	Normal.	..	Hysterectomy of right rudimentary pregnant horn; cervix apparently solid; microscopical examination showed a lumen through which a bristle might pass.	93
..	Normal.	Vagina double.	Septum so thick that it had to be incised at the fourth month of pregnancy.	94
..	Breech presentation; feet came down on one side of septum; later attempted to descend on the other side tearing septum above; it had to be excised and the child was delivered.	Vagina double.	Fœtus anencephalic.	95
..	Normal (seven abortions).	..	..	96
..	Abdominal section.	..	The fœtus was almost expelled into the abdominal cavity; removed alive; only lived six hours; mother recovered.	97
..	Forceps.	..	Several abortions; one pregnancy; fœtus weighed 9 lb.	98
..	Cæsarean section.	Vagina double.	Patient and child did well.	99
..	Abortion at three and a half months.	..	Polypus in left half; pregnancy in the right half; abortion at three and a half months.	100

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Dr. Stark said he had reported a case of uterus didelphys in which there was a complete vaginal septum forming two hymens, and two vaginæ, and two ora uteri. The septum was prolonged about half way into the cavity of the uterus, and Dr. Stark had removed the entire septum, formed one os, and split into the uterine cavity, making the patient practically a normally formed woman as regards the uterus and vagina. In this case there was only one corpus uteri, but in another seen there were two distinct corpora, and this was verified by laparotomy for removal of small atrophic ovaries for the relief of severe menstrual molimina. The result was highly satisfactory, and health and comfort, which had been lost since the age of puberty, had been restored.

III.—LANTERN DEMONSTRATION ON PATHOLOGICAL CONDITIONS OF THE TUBES AND OVARIES.

By Dr. J. K. Kelly.

Dr. Kelly gave a lantern demonstration of various diseases of ovaries and fallopian tubes, including dermoids of ovary; parovarian cysts; hydrosalpinx (single and double); hæmatosalpinx (single and double); hæmatosalpinx in one tube, with pregnancy in the other; hæmatoma of tube and ovary removed during pregnancy; abscesses of ovary independent of pyosalpinx; pyosalpinx independent of pyovarium; pyosalpinx and pyovarium combined; tubercular pyosalpinx; cancerous tubes; cancerous ovaries. Microscopic sections thrown on the screen representing tube in hæmatosalpinx, tube in pyosalpinx, tube in tubercular salpingitis, wall of cystic accessory tube, papilloma of ovary, and various forms of cancer of ovary.

Meeting IV.—24th January, 1906.

The President, Dr. J. K. Kelly, *in the Chair.*

I.—SPECIMENS.

A. By Dr. Robert Jardine.

1. Ruptured uterus showing laceration through the lower uterine segment.
2. Cancer of the cervix involving the posterior lip.

B. By Dr. J. Nigel Stark.

1. Calculus removed by operation from the neighbourhood of the urethra, but not connected with it.
2. Pyosalpinx.

C. By Dr. E. J. Primrose.

Anencephalus fœtus.—Born in the seventh month on 3rd January. Presenting foot, hand, and head at delivery. Placenta degenerated over a small area.

Special feature of interest in the case was that the posterior wall of the *uterus was myomatous* and roughly felt about the size of a large lemon.

At the last confinement, three years ago, the placenta was adherent and removed by hand. Menstruation thereafter became irregular at five and six weeks' intervals. From the middle of May till 4th June last there was constant hæmorrhage and none since till this confinement.

Present puerperium uneventful; placenta easily expressed. Myomatous wall of uterus has come down in size very considerably.

D. By Dr. D. Duff.

Placenta from placenta prævia.

E. By Dr. J. K. Kelly.

Sarcoma of the uterus from a case in which Cæsarean section was performed.

II.—NOTES OF FOUR CASES OF OBSTRUCTED LABOUR: TWO FROM CANCER OF THE CERVIX, ONE FROM HYPERTROPHY AND PROLAPSE OF THE CERVIX, AND ONE FROM COMPLETE OCCLUSION OF THE OS UTERI.

By Dr. Robert Jardine.

Cancer of the cervix.

Case I.—Mrs. C., xi-para, æt. 36, seven months pregnant, was admitted to the Glasgow Maternity Hospital on 11th May, 1905, suffering from severe hæmorrhage. Six weeks earlier she had been seen by Dr. Banks, one of the out-door house surgeons, for bleeding from a cancerous cervix, which he had considered too far advanced for operation.

The patient stated that the bleeding had commenced when she was three months pregnant, and had recurred frequently since then. Prior to this pregnancy her menstruation had been normal, the periods lasting for three days, but during the last few years she had suffered from much more pain than in her younger days. She had never had any foul discharge, and there had not been any clots passed until a day or two before admission. She had lost a good deal of flesh. Since the bleeding had commenced she had suffered from intermittent pain in the left groin and down the left thigh. There had been no trouble with the bowels or bladder. Her last delivery had been ten months ago.

Her family history was good. Her mother, aged 79, was still alive, and her father had died at the age of 88.

On examination the patient was found to be in labour. She stated that the waters had come away twenty-four hours previously and that there had been a great deal of bleeding during the few hours prior to admission. The child lay transversely with its head in the left flank. The os was partly dilated, and easily admitted two fingers. The bleeding had ceased. The anterior lip of the cervix was one hard mass of cancer, which extended close up behind the symphysis pubis, but did not seem to be attached to the bone. The posterior part of the cervix was quite soft and dilatable. On the left side of the vagina there was a projection outwards of the cancer. By passing the finger up the cervical canal the cancer could be felt extending beyond the internal os into the lower uterine segment.

It was quite evident we had to deal with an inoperable case. As the membranes had been ruptured for twenty-four hours, and the child lay transversely, I determined to dilate and

deliver at once by version, before impaction had occurred. The posterior portion of the cervix yielded easily, and version was quickly accomplished. The child was asphyxiated, but came round. It was kept in the incubator, but only lived three days. It became very jaundiced before it died.

After delivery there was very little bleeding, but to prevent any further loss from oozing I plugged the uterus and vagina firmly with iodoform gauze.

I removed a portion of the mass, and the diagnosis was confirmed microscopically.

The plugging was removed twenty-four hours after delivery. The patient made a good recovery, but she complained of severe pain down the back of the left thigh. The sciatic nerve was being pressed upon.

I did not see the patient after she was discharged, but I heard she had been at the Royal Infirmary Dispensary, and also in the Cancer Hospital for a time. I last heard of her in November, when she was being attended from the medical mission.

CASE II.—Mrs. M'A., vi-para, æt. 34, full time, was admitted to the hospital on 3rd December, 1905, in labour. The patient stated that her previous labours had been normal. During the present pregnancy she had suffered from slight bleedings at the times which corresponded with her menstrual periods.

The resident found the os was about the size of a shilling, and the head was presenting. He noticed that the posterior lip of the cervix was harder and more irregular than usual, but did not at first recognise the condition. I saw the patient about ten hours after admission. The labour had progressed very slowly.

I found the os was partly dilated, but the posterior lip of the cervix was infiltrated with cancer. The lip was separated into two layers by a sulcus nearly an inch in depth. The anterior layer was very much harder than the posterior, and it felt like the thin edge of a very hard placenta. The vagina did not seem to be infiltrated, as the cancer was apparently confined to the cervix. The anterior lip of the cervix felt free of the infiltration.

The case was one in which a hysterectomy could be done, and I would have operated at once, but it was impossible to communicate with the patient's friends, and I did not care to take the risk of such a major operation without her husband's consent. The condition of the patient, too, was far from satisfactory, as she was coughing a great deal and took the

chloroform badly. I decided to dilate and deliver at once, and do a hysterectomy later if the patient and friends were willing. The dilatation was done manually, and the child delivered with forceps. It was alive, and weighed 7¼ lb. The cancerous tissue was somewhat lacerated, and I removed several bits of it with my fingers. There was no great bleeding. I plugged as in the previous case. The recovery was uninterrupted.

Microscopic examination of the tissue confirmed the diagnosis.

I was anxious to do the hysterectomy within a week or ten days of the delivery, but there were certain arrangements the patient had to make which delayed matters, so the operation could not be done until the 26th. By this time the patient's condition was excellent, and the uterus had involuted into the pelvis. The vaginal mass felt smaller than at the time of delivery, due to closing of the cervical canal.

With Dr. M'Bryde's assistance, I operated by the combined abdominal and vaginal method. The broad ligaments were first tied off and cut, and the bladder stripped down, and then Dr. M'Bryde incised from below and removed the uterus through the vagina. I then closed Douglas's pouch by stitching the anterior and posterior peritoneal layers together from above with catgut sutures. The vagina was plugged from below. The abdomen was closed with through-and-through silkworm-gut sutures.

The patient made a good recovery.

I saw her three months later, and found that the cancer had recurred in the cicatrix, and was spreading on to the vaginal walls. She had no pain.

Cancer of the cervix is a rare complication of labour. I found records of only three cases in 51,290 confinements in the out-door and in-door departments of the hospital between 1869 and 1898. Within the last three years I have dealt with three cases, and Dr. Kerr has also had several. Of my cases, two were inoperable as regards hopes of cure. In the first case, which has already been published, the cancer formed a large mass, involving both lips of of the cervix and spreading into the vagina, so that delivery through the natural passages could only have been effected by first clearing away the mass. I did not do this, but delivered by abdominal section and removed the uterus supra-vaginally, because the patient had nearly bled to death before she was brought to the hospital. By securing the uterine arteries from above, I effectually controlled the bleeding. As a rule, even in cases too advanced for any hope

of cure by operation, delivery can be effected through the natural passages. The tissues are friable and dilatation can be done even without incisions. The bleeding is usually not excessive, and can be controlled by plugging.

In regard to cases in which there is a chance of cure by operation, what operation should be done and when should it be done? As regards the operation, it must either be a high amputation of the cervix or a complete hysterectomy. At the present day, in the treatment of cancer of the cervix in non-pregnant cases, I do not think there are many advocates of the cervical operation, and in cases complicated with pregnancy I think the same rule should apply, viz., that if an organ is affected with cancer the best hope of cure lies in removal of the whole organ. As regards the time of operation, the sooner the better, so that whenever an operation is feasible it should be done at once. In Case II, unfortunately, circumstances over which we had no control compelled us to postpone the operation, but in the best interests of the patient it should have been done at once.

One may deliver through the natural passages and then do the hysterectomy by the vaginal route, but, personally, I must say I would prefer doing the operation as in Case II, by the combined method.

Hypertrophy and prolapse of the cervix.

CASE III.—Mrs. R., ii-para, æt. 27, seven months pregnant, was brought in an ambulance from the country, in labour.

She stated that her first child had been born without assistance three years previously. She had been in poor health previous to the confinement. She had risen on the sixth day, and in a few days she had begun to feel great discomfort and bearing-down. A medical man had seen her, and inserted a support which she had worn for six months. She had then felt so well that she had discarded the support, but a month or two later she had become worse and had then attended the Western Infirmary Dispensary, where a support had been inserted, and she had worn this until she had become pregnant. After she became pregnant the womb came down worse than ever. A short time before she came to us she had been in the Samaritan Hospital for a week.

On admission, the cervix was protruding from the vulva. It could be pushed up with difficulty. The os was beginning to dilate, but the cervical canal was about 3 inches in length. The head presented. The fundus was at the level of the umbilicus, and the child was alive.

The cervix was pushed back into the vagina and labour was allowed to go on. On the following day I found the cervix was dilated to about the size of a crown piece, but it formed a long tunnel, and there was no taking up of the cervix in the usual sense. As there did not seem to be any likelihood of delivery occurring by natural efforts, I decided to dilate manually and deliver with forceps. The cervical canal was dilated until the hand could pass, and the forceps were applied. When traction was applied we supported the cervix and tried to work it up over the head, but we found that we could not bring the head through the long tunnel. The head was small, and the forceps were rather too large for it; a small pair might have brought it through. As the child was a very premature one, and at the best there was not much chance of its surviving even if it were born alive, I decided to do a craniotomy on it. After perforation delivery was easily accomplished with the combined instruments. The child weighed 2½ lb. There was no bleeding from the cervix, but the uterus did not retract well, so, in order to prevent loss of blood and also to keep the cervix well up in the vagina, I plugged the uterus and vagina firmly with iodoform gauze. The plug was removed twenty-four hours later. The patient made a good recovery, and there was no protrusion of the cervix during her stay in hospital, but no doubt prolapse would again occur after she began to go about.

I have seen several cases somewhat similar to this one, but only in one of them was there great difficulty in delivering, and I managed to get a live child through with forceps by supporting the cervix and working it up over the head.

Complete occlusion of the os uteri.

CASE IV.—Mrs. D., i-para, æt. 31, was admitted to the hospital in labour at full time. On the previous day a nurse had seen the patient, and had concluded that she was not in labour. A midwife had been called in, but she had said there was an obstruction and had left the case. A second nurse had been called from the hospital, and she had sent for the out-door resident to see the case. Dr. Patrick found the head was above the brim and overlapping to a certain extent, so, without making a vaginal examination, he brought the patient into hospital.

I saw the patient shortly after admission, and found that she had a flattened pelvis with a true conjugate of about 3¼ inches. The head lay above the brim, and was freely movable.

There was no os to be felt. A careful inspection, after exposing the vaginal vault with retractors, confirmed the diagnosis of occlusion of the os uteri. At the place where the os should have been there was a depression, and through this I made a crucial incision and then dilated the cervix with my hand. The cervix was completely taken up, so the dilatation was easy. The head lay transversely, with the posterior parietal bone presenting, so delivery was effected by version. The child could not be resuscitated. Its heart beat well for some time, but we could not get it to breathe. Probably there had been hæmorrhage into the brain.

After delivery the cervix protruded from the vulva. At each side the mucous membrane of the vaginal portion of the cervix was torn, but there was no deep tearing of the cervical tissue itself. The cervix protruded as if the mucous membrane had been retracted over it after having been split at each side. I stitched the tears with catgut. I could not understand this prolapse of the cervix, but the history the patient subsequently gave us explained the matter.

She said that for a year or two prior to her pregnancy she had suffered from falling of the womb, and had worn a support for some time.

The patient made a good recovery.

I examined her before she was dismissed and found that the cervix showed evidence of lacerations, but nothing more than one would expect after a severe delivery. She promised to return in a few weeks to have a pessary inserted, if she should require one, but she failed to put in an appearance.

I have now seen seven cases of complete occlusion of the os uteri. Two of them have been in multiparæ. The occlusion, of course, occurs subsequently to impregnation, but at what time during the pregnancy it is impossible to say. None of the patients gave any history of an inflammatory attack during the pregnancy. In the case just recorded the membranes seemed to be adherent at the lower part, but adhesions of the membranes are common enough in ordinary cases.

There are two other conditions which might be mistaken for occlusion of the os, viz., when the os is fully dilated and the cervix retracted above the head without any forewaters being present, and the second, when the os lies high up and far back and the anterior lip of the cervix is stretched over the head. A careful examination should prevent any mistake being made.

In some cases it will be possible to scratch through the

occlusion, but in others an incision will be necessary. After a crucial incision is made dilatation may be left to nature, but I prefer dilating at once. In one case I left it to nature, but some hours later I found the cervix was tearing badly towards the sides, so I had to make free incisions, anteriorly and posteriorly, to prevent the lateral tears from extending into the fornices. In none of my cases has there been any great bleeding after delivery, and the present one is the only one I have put any stitches into. This patient was a primipara, and as she had suffered from prolapse previous to the pregnancy in all probability her cervix had been hypertrophied. The way it protruded after delivery gave one that impression.

Dr. Parry had seen one case of cancer of the cervix in labour.

Dr. Kelly had no experience of the condition. Hypertrophy of the cervix was not uncommon, but he had never had a case of complete occlusion of the os during pregnancy.

Dr. Lindsay asked what effect pregnancy had on the rate of spread of cancer. Should pregnancy be terminated at once in early cases of cancer?

Dr. Jardine replied that growth was rapid during pregnancy, and that the proper course was to operate at once.

III.—TWO CASES OF PURPURA HÆMORRHAGICA NEONATORUM.

By Dr. Alex. Allan.

It is a matter of common knowledge that spontaneous hæmorrhages occurring during the early years of life are not uncommon. These hæmorrhages may arise from mucous tracts, such as nose, mouth, or gastro-intestinal tract, or skin ecchymoses from trivial traumata, or even hæmorrhagic effusions into internal organs.

No definite classification of the actual or contributing causes of these hæmorrhages has been made as yet, and the subject is still somewhat obscure, but the general opinion is that they are often symptomatic of specific diseases, such as syphilis, &c. Ashby[1] strongly emphasises this view of their causation.

It must be remembered also that slight hæmorrhages from mucous tracts in earlier life, such as "bleeding from the nose," are quite consistent with a fairly high standard of general health, and may be looked upon as practically physiological.

Townsend[2] corroborates the general opinion expressed

[1] *Diseases of Children.*

[2] *Archives of Pediatrics*, 1894, vol. ii.

regarding these spontaneous hæmorrhages (viz., their symptomatic nature), but after a series of observations emphasises the propriety of making a clear distinction between a special form of hæmorrhage, not associated with any known specific process, occurring during the first few days or weeks of life, and in which escape of blood from the small blood-vessels is the chief or essential symptom, on the one hand, and the later, what we might call symptomatic, hæmorrhages and the hæmophilic diathesis on the other. He bases his conclusions on the uniformity of symptoms which characterise the course and the general distribution of this special form of hæmorrhage, and which distinguishes it as a separate clinical condition, essentially different from the generally recognised symptomatic hæmorrhages of early life, and also hæmophilia. This form he proposes to name "hæmorrhagic disease of the newborn."

Rotch,[1] after a study of the literature and a review of Townsend's cases, considers we are warranted in making the following general conclusion that "the disease is one of a general nature, and infectious," for the following reasons:—(1) It occurs more frequently in hospitals than in private practice (in this connection due allowance must be made for the fact that facilities for observation and study of cases are much greater in hospitals than in private practice, and also, cases occurring in these institutions are more likely to be recorded); (2) its acute onset; (3) its self-limited course; (4) the almost invariable elevation of temperature during the acute stage, and its fall on recovery or on cessation of hæmorrhage. He thus brings this form of disease into line with the main features of the other acute infectious disorders.

Holt[2] agrees with views expressed above, but is averse to placing much importance on elevation of temperature, as fluctuations due to nutritional causes are frequent in the first few days of life.

The following are the notes of two cases occurring in the late autumn of last year, in the practice of Dr. J. M. Ramsay and myself, which we considered belonged to this special form named "hæmorrhagica neonatorum."

CASE I.—Mrs. R., a healthy-looking primipara, was delivered of a male child on 30th September, 1905. Labour was somewhat protracted, owing to the presentation being a right occipito-posterior, but otherwise was without event. The child

[1] *Text-book of Pediatrics.*
[2] *Diseases of Infancy and Childhood.*

was plump and healthy-looking, and weighed 8¼ lb. It breathed freely and cried lustily immediately after birth, and "took the breast" readily two hours later.

On 2nd October, within forty-eight hours of the birth, I was hastily summoned about 4 A.M. to see the child. The nurse's story was to the effect that the child had become restless and fretful, refusing the breast, and appeared to suffer from colicky pains, and had passed a large quantity of blood by the bowel. Two or three napkins were shown me, soaked with blood and mixed with meconium. The blood was very dark, almost tarry, and was free from clots, evidently having been shed from high up in the intestinal canal. There was no hæmatemesis or vomiting of any kind. The facial appearance had changed markedly from the previous day, and there was a greyish pallor present. The restlessness and abdominal pains at intervals still continued, and, in addition, the child refused all nourishment. Pulse and respiration were both increased, and there was a considerable elevation of temperature, the pulse ranging from 120 to 126 per minute, and the temperature 102·8° F. There were no signs of any rash or patches of ecchymosis at this time. At 10 A.M. I again saw the child, and found the general condition was much worse. Large patches of ecchymosis were present in the umbilical region, and over the upper parts of both tibiæ in front. The temperature was 101·6° F., and the pulse varied between 128 and 130 per minute. The restlessness and fretfulness of the child had increased, the face was pinched, the eyes were sunken and black crescents had appeared under the lower lids, and the anterior fontanelle was depressed. The bowels had moved twice in the interval, and the dejectæ were tarry-looking, but the napkin round the mass showed a pinkish tinge. I saw the child again at 2 P.M. and at 6 P.M. The only new features to be recorded were the appearance of fresh patches of ecchymosis about the anterior axillary folds and the inner surfaces of the thighs, with some purpuric spots over the front and sides of the chest and abdomen. The pulse was barely perceptible, and the thermometer would not rise above 95° F. The bowels had not moved again. The child died shortly afterwards.

In view of theories of causation, it remains to be noted that there were no signs of any septic or inflammatory condition about the umbilicus. No marked jaundice, no cyanosis, and no signs of paralysis were observed. Some urine was obtained, but this presented no abnormalities, and the reaction for blood

in particular was negative. The child had suckled freely and rested well till the onset of this illness, and had appeared in every way healthy.

The father denied having had any venereal disease or having exposed himself to the risk of infection. There was no history with either parent of rash, sore throat, or falling out of hair, and no history of previous abortion or miscarriage with mother. Further, there was no history of either hæmophilia or rheumatism.

CASE II.—Mrs. H., iv-para. Confined on 7th October, 1905; one week later than Mrs. R. She was in charge of a midwife, who diagnosed a breech presentation, and sent for assistance. The labour terminated uneventfully, and the child was well-nourished and healthy.

Three days later (10th October), a message was sent in the morning stating that the child had passed blood by the bowel, and, in addition, had vomited blood twice during the early hours of morning. Examination showed the presence of blood mixed with meconium on the napkins, but evidently in smaller quantity than in the previous case. The gums were soft, and there was a thin, blood-stained, watery fluid dribbling from the corners of the mouth. It appears the child had had 1 drachm of ol. ricini the night previously, and had become restless and fretful, refusing to suckle, and apparently suffering from abdominal pains afterwards.

There were some irregular but well-marked purpuric spots on the buttocks and lower limbs, one large patch of ecchymosis over the anterior surface of the right shoulder, and a smaller patch over the left breast. There was oozing of blood from the umbilicus, apparently capillary in nature, but only to a slight extent. The pulse-rate varied from 130 to 134 per minute; the temperature was 102·4° F.; the breathing was rather irregular, but did not exceed 24 per minute. The child was fretful and restless and would not suckle, but, so far as facial appearances went, did not seem particularly ill. The urine did not stain the napkins. About 5 P.M. the child had a convulsive seizure in which it died.

As in the previous case there was no evidence of parental syphilis; the three elder children were alive and healthy, and there had not been any intervening abortions or miscarriages. There was no hæmophilic or rheumatic history. No jaundice or cyanosis was noted, and there was no evidence of any septic mischief about the umbilicus.

Post-mortem examination was refused in both cases, and

I also regret I was unable to make a complete blood examination.

The similarity of the above cases is very striking so far as clinical history goes. The same prodromal symptoms of restlessness, fretfulness, and refusal of nourishment were present in both, followed by melæna and the appearance of patches of ecchymoses over the trunk and lower limbs, associated with elevation of temperature, and progressing rapidly to the same fatal issue.

It is true additional symptoms were present in the second case, in the omphalorrhagia, hæmatemesis, and the onset of a convulsive seizure, but these mark, not a different disease, but probably a more virulent infection.

It is also important to note that in both there was absence of any syphilitic, rheumatic, or hæmophilic history, and also absence of any evidence of gross septic or inflammatory mischief about the cord.

At this point, perhaps, I may remind you of the main features of "hæmorrhagica neonatorum," and mention some points in the differential diagnosis.

As indicated above, it is only in recent years that any attempt has been made to classify or arrange the various disorders of early life characterised by hæmorrhages of one form or other, and most authors have been content to group them indiscriminately together. The extreme rarity of this particular form of disease, the obstacles in the way of having efficient skilled observation of the cases and histological examination of the tissues or blood tend to make advance in knowledge very slow, but sufficient has been done to warrant the subjoined facts as being in the main typical.

The distinguishing features are briefly as follows:—The hæmorrhages in "hæmorrhagica neonatorum" are not associated with any known specific process, the bleeding is from the small blood-vessels, is spontaneous in origin, has no known connection with delivery, is multiple in location, and, while little influenced by treatment, tends to cease in a limited time.

Etiology.—The predisposing causes are similar to those which determine the occurrence of bleeding in the traumatic or other hæmorrhages of early life, viz., (1) the fragile condition of the blood-vessels themselves, (2) the profound changes in the circulation, and (3) alterations in the blood itself in the newly-born.

Age.—It occurs in very early life. In the analysis of Townsend's cases it was found that the onset of the disease was practically always in the first week after birth, and usually on the second or third day, the order of frequency being third, second, fourth, and first day of life. The tendency to bleed does not extend beyond a few weeks.

Sex.—It occurs most frequently in females, in the ratio of three females to two males. In hæmophilia, on the other hand, the ratio of incidence is thirteen males to one female.

It is regarded as infectious in nature on account of, as stated above, (1) its acute onset, (2) its self-limited course, (3) the febrile temperature, (4) its ending in recovery or death, (5) its comparative frequency in hospital practice.[1] The statistics of Boston Lying-in Hospital show a difference between the out- and in-patient departments of 0·47 per cent. The actual figures out of a series of 7,000 cases were—out-patients, 0·10 per cent; in-patients, 0·57 per cent. Ritter[2] shows an incidence of 1·4 per cent in the Lying-in Asylum at Prague, and Epstein[3] 8 per cent in the Foundling Asylum. Gærtner[4] found in two cases a short bacillus, resembling bacillus coli communis in some respects, which caused a similar disease in newborn dogs on injection. Holt reports a similar bacillus in cultures taken from the umbilical arteries, heart, and spleen of a child eight hours after death. Various other forms of pathogenic organisms have been found, so the bacterial causation is not yet settled.

From the point of view of comparative anatomy it is worthy of note that there is a well-recognised disease of newly-born domestic animals, characterised by spontaneous, multiple subcutaneous, and other hæmorrhagic effusions, which becomes at times epidemic in districts. This disease occurs in the first few weeks of life, is of a very fatal type, and is generally supposed by veterinary pathologists to be due to infection by the umbilicus.

Symptoms.—Restlessness, fretfulness, refusal of breast, and colicky pains are usually present. The facial appearance of the child changes very markedly, as was strikingly apparent in the first of the two cases noted above. Pallor of a greyish-yellow

[1] *Archives of Pediatrics*, vol. ii, 1894.
[2] *Diseases of Infancy and Childhood* (Holt).
[3] *Loc. cit.*
[4] *Loc. cit.*

hue is early manifested, and is probably due to loss of blood. The face is pinched. The eyes become sunken, with black crescents under the lower lids, and the anterior fontanelle is depressed. The general condition is one of prostration.

These prodromal symptoms are followed by the appearance of purpuric spots or patches of ecchymosis *pari passu* with the onset of hæmorrhages from mucous tracts, such as stomach, mouth, nose, or intestines. There may be hæmorrhages into the meninges, causing paralysis.

If the hæmorrhage is high up in the intestinal tract its tarry colour may simulate meconium, and thus it may be difficult to distinguish; the napkin round the mass of dejecta has, however, usually a pinkish tinge. If that is insufficient, microscopic examination for blood should be made, or if there is disintegration of the corpuscular elements the chemico-microscopic test for hæmin crystals will resolve any doubt.

There may be oozing from the umbilicus, usually capillary in nature, as in the second case noted above. Convulsions may ensue. Renal hæmorrhagic effusions have not been noted as a rule, but several cases are reported in which this did occur. Ashby[1] inclines to the view that these cases are likely to have a specific cause. Epistaxis is also infrequent, but may be recurrent. Holt[2] states this is often symptomatic of congenital syphilis.

The pulse is rapid and feeble, and may be irregular. Respiration is often irregular, and increased in rate. Temperature is almost invariably elevated, ranging from 101° F. to 103° F.; 106° F. has been recorded. Epstein, quoted by Ashby, points out, with regard to temperature, that absence of fever at any one given time is no criterion as to a non-febrile condition, as children are notoriously liable to have great and sudden variations in temperature; thus, for a record of temperature to be of value, it must be taken frequently. Loss of weight is rapid and great.

Wentworth[3] publishes records of a blood examination. The blood was thick, and the corpuscular elements stained badly. There was a large increase of polymorphonuclear forms of leucocytes. The percentage of hæmoglobin was 12·5.

Diarrhœa is present in a large number of cases.

Duration and prognosis.—Townsend's[4] statistics of observed

[1] *Diseases of Children.*
[2] *Diseases of Infancy and Childhood.*
[3] *Text-Book of Pediatrics.*
[4] *Archives of Pediatrics*, 1894, vol. ii.

cases show a death-rate of 62 per cent; of collected cases, 79 per cent. Half the fatal cases died in one day's illness; the remainder in less than one week's. Recovery took place within ten days, and, of the cases which recovered, two-thirds did so in five days.

It appears that the early cessation or absence of gastro-intestinal hæmorrhages is of good omen, especially if the child nurses well. Weak, irregular pulse and respiration, with high temperature and refusal of food, are of evil omen. No case should be regarded as hopeless, as recovery may take place under most adverse conditions.

Diagnosis.—1. Pseudo or precocious menstruation should be distinguished from this condition. The course and regularity of recurrence, with the absence of grave concomitant symptoms, sufficiently indicate the difference between the conditions.

2. Cases of so-called melæna neonatorum, if accompanied by febrile disturbance and running an acute course, probably belong to this category.

3. Hæmorrhage from the bowel due to gastric or intestinal ulcer, occurring in very early life, should be separated from the above disease. The presence of symptoms, such as hæmatemesis, occurring regularly after nursing and response to the special treatment for such conditions, as in the case reported by Morris and Feldham,[1] with absence of the other symptoms of hæmorrhagica neonatorum, will sufficiently indicate the diagnosis. The separation of the above disease, viz., gastric or intestinal ulcer, from hæmorrhagica neonatorum has not as yet been done by most authors, but that it should be done is, I think, clearly demonstrated by the series of twenty-four cases of fatal infantile hæmorrhage reported by Düsser, in which gastric ulcer was found *post-mortem* in nine cases and intestinal ulcer in four cases.[2] Grainger Bisset[3] reports a case of pure melæna without hæmatemesis, in which gastric ulcer was found *post-mortem*. Goodhart[4] reports a case of gastric ulcer in an infant, 30 hours old, in which, after death, the ruptured vessel could be seen with a hand lens lying in the floor of the ulcer. Ulcers of the stomach or intestine have also been described by Relliet, Billard, Henoch, Dreschfeld, and others.

[1] *British Medical Journal*, 18th February, 1905.
[2] *Thèse*, Paris, 1889.
[3] *Lancet*, 8th July, 1905.
[4] *Path. Trans.*, London, 1883.

4. Swallowing of blood from cracked or fissured nipples must be remembered, as well as blood swallowed from the maternal passages during parturition, if this latter event ever occurs.

5. Septic arteritis or phlebitis, with subsequent septicæmic rashes of a purpuric nature, ought to be excluded. It is not ordinary pyogenic organisms, so far as is known, that cause the typical disease of "hæmorrhagica neonatorum." Examination of the umbilicus will indicate the presence or absence of gross septic mischief.

6. Hæmorrhagic effusions into various tissues, due to presence of congenital syphilis, as in Fischl's cases quoted by Ashby, are also excluded. The later appearance, the absence of febrile manifestations and the presence of other specific symptoms, will, of course, differentiate the conditions. Townsend notes three of his cases with a clear syphilitic history in the parents.

7. Hæmophilia ought to be clearly distinguished from "hæmorrhagica neonatorum." They are not similar conditions. The striking family history of bleeders so impresses the lay mind that, if present, one is nearly always obtainable. Its occurrence after trivial traumata, its incidence in males, and its persistent liability to recurrence are points to be clearly borne in mind.

8. Acute fatty degeneration of the newborn (Buhl's disease) and hæmoglobinuria of the newborn (Winkel's disease) must also be distinguished. The early asphyxia, together with the grave icterus and cyanosis of the former, and the hæmoglobinuria, coma, collapse, and absence of fever of the latter, make a marked distinction.

9. Infantile scorbutus and purpura hæmorrhagica need to be remembered. The association of the former disease with improper feeding, and the duration, early appearance of rash with the frequent joint affections and onset later in life of the latter, sufficiently differentiate the diseases.

Morbid anatomy.—No gross lesions were found in typical cases. The bleedings were usually capillary, and showed a striking impartiality as to situation, being found in order of frequency in skin and subcutaneous tissues, mucous tracts, umbilicus, abdominal cavity, pleural cavity, meninges, thymus, &c. Anæmia of the internal organs was usually marked.

In review of cases such as above, one endeavours to arrange their more characteristic features according to their supposed clinical value, and compare the conception of the disease thus

arrived at with some more familiar type apparently having similarity to the one under review, and, working back from these grounds, endeavour to get at some working conception of the etiology and pathology of the condition, and the physiological facts which have a bearing on the subject. As already stated, the essential symptom of hæmorrhagica neonatorum is the occurrence of bleeding from the smaller vessels, and, naturally, association of the disease with purpuric conditions generally, and with hæmophilia in particular, is first thought of. The etiology of both these forms of disease is still obscure, but their clinical features have been most closely observed and circumspectly detailed. To obtain any intelligent conception of the subject, certain physiological conditions, abrogation of which permits of hæmorrhagic manifestations, must be clearly borne in mind. Briefly, they are as follows:—

Hæmorrhage into the tissues may result from—

1. Undue intravascular tension, as in violent effort.
2. Lessened extravascular pressure, intravascular tension remaining normal, as in climbing high altitudes.
3. Disease of vascular walls, as in malnutrition.
4. Traumatism to vessel walls.
5. Disorders to perivascular tissues lessening normal support to vessel walls, as the evacuation of an abscess.
6. Constitutional conditions, as specific fevers, septicæmia, drug toxæmias, rheumatic or gouty diathesis, renal, tubercular, malignant, or other cachexias, and, lastly, nervous disorders.

The possible three which operate in hæmorrhagica neonatorum are the first two, viz., mechanical causes due to alterations in intravascular tension and extravascular pressure (which necessarily arise as a consequence of the change in the pressure conditions of the child's environment on its entering an existence apart from the mother), and the last, viz., constitutional conditions. Mechanical causes do not explain all the symptoms, and at best can only aid in their production, and, necessarily, the last factor must be given the first place as an etiological agent. As stated above, the weight of evidence favours a bacterial cause, the selective action of the toxin probably being the most potent factor in the production of the lesions observed, although as yet neither the theory of an infectious poison, nor that of a specific bacterium, has been absolutely verified.

Henoch[1] inclines to the view that all hæmorrhagic diseases are allied, but the analogy is only in the local anatomical

[1] *Clinical Lectures on Infantile Diseases*, New Sydenham Society, 1895.

distribution of the lesions—the causal factor must differ in each case. Thus, the infective nature of the condition hæmorrhagica neonatorum running its acute course distinguishes it clearly from ordinary purpura; where probably the rheumatic or other poison acting on the same vessels produces symptoms which superficially are alike, but which differ in their late appearance, their non-infective character, and in the presence of the arthritic symptoms which have not been noted in the former disease.

Other theories of causation may be mentioned. Kiwisch and Landau suggest too early ligation of the cord as a cause, the former suggesting that a hyperæmia of the mucous membranes occurs, due to the sudden occlusion of the umbilical arteries, the latter that ligature was performed before the full establishment of respiration, and, later, emboli were aspirated into the circulation from coagulated blood in the umbilical vein. None of these factors were operative in the two cases mentioned above. The hæmophilic diathesis should be, I think, altogether excluded. Rotch [1] reports a case in which circumcision was performed a few days after recovery from hæmorrhagica neonatorum. Other cases are recorded in which omphalorrhagia was present, yet after recovery the cord dropped off without further bleeding. From the point of view of treatment and prognosis it is essential to distinguish between them, as we can thus approach the case in a much more hopeful spirit. Townsend [2] strongly emphasises this view, and quotes a very striking case in its support.

Treatment.—Perfect rest and quiet must be insisted on, together with careful and persistent feeding, either with spoon or dropper. The mother's breast should be exhausted, and the child fed with this or with carefully prepared artificial diet. This alone may be sufficient to prevent a fatal issue. Warmth on the appearance of collapse, and the exhibition of alcohol in minute doses, even in the stage of bleeding, are of value. Astringents for the internal bleeding are of doubtful value, as the amount of digestive disturbance more than counterbalances their usefulness, at least in the case of ergot or mineral acids. Calcium chloride should be tried in the less acute cases. Adrenalin is of value for local use, such as mouth or surface scratches. Umbilical hæmorrhage is best controlled by judicious pressure with a sterilised pad of cotton-wool. The method of fixation is simple; the pad is applied, and the

[1] *Text-book of Pediatrics.*
[2] *Archives of Pediatrics*, vol. ii, 1889.

skin of the abdomen folded over it and held thus by adhesive plaster, and the binder fixed above.

General treatment affords most hope, and careful attention to feeding, warmth, stimulation, and general hygiene is of more importance than treatment by any known drugs.

IV.—FÆCAL MASS IN CÆCUM RETAINED BY A SIMPLE STRICTURE, AND DIAGNOSED AS CANCER OF SMALL INTESTINE.

By Dr. G. Balfour Marshall.

Although the following case does not, strictly speaking, come within the domain of gynæcology, yet I think it will prove of sufficient interest to justify my bringing it before the Society, more especially as the gynæcologist has not infrequently to determine whether a tumour belongs to a pelvic or abdominal organ.

Mrs. S., aged 46, was first seen by me on 16th March, 1905. She complained of the presence of a small lump in the abdomen to which she attributed the abdominal symptoms from which she suffered. She was a thin woman, somewhat emaciated, and a chronic dyspeptic. Her teeth were mostly absent, and she had numerous carious stumps in the gums which would cause continued oral sepsis. There was pain and a sense of fulness in the epigastrium after eating, but she complained most of the colicky pains in the abdomen, from which she was never free for a single day. She was habitually costive, and for years had taken laxatives, without which the bowels would remain confined for several days at a time.

Abdominal examination.—The abdominal wall was very thin, so that intestinal movements were readily seen, and examination rendered easy. A hard lump lay in the right lower quadrant of the abdomen, ovoid in shape, slightly irregular, and of hen's egg size. It was freely movable, and could be pushed in all directions in the right half of the abdomen, viz., up to the costal margin, as far as the middle line in the umbilical region, on to the iliac crest in front, and down into the pelvis.

On making a bimanual examination the tumour could be grasped between the fingers and freely moved in the right half of the pelvis, as if it were a small ovarian tumour with a long pedicle. When the tumour was squeezed there was no tenderness, and its consistency suggested a cancerous mass.

My first diagnosis lay between a cancer of the small intestine,

a cæcal tumour, or a solid ovarian tumour with a long pedicle. The tumour's connection with any other organ could be excluded, while a second examination showed it could not be ovarian.

The state of the patient's health quite excluded any immediate operation, and as the diagnosis was by no means certain, I kept her under observation. She was placed on careful diet as well as medicinal treatment, while a very necessary new set of teeth was prescribed and obtained.

She suffered much from flatulent distension of the abdomen, and I noticed that the more distended the intestines were the more the tumour tended to take up a position near the umbilicus. On the other hand, if examined after a good evacuation of the bowels and when the abdomen was flaccid, the tumour occupied a position in the region of the caput cæcum.

A noticeable and interesting point in connection with the attacks of colicky pain was the manner in which, day after day, they would commence about four in the morning and persist till the bowels were evacuated. At other times the pains would last more or less till the afternoon, especially if the bowels had not moved that morning.

The tumour, during the eight months I had the patient under observation, did not apparently get any larger, it retained its former mobility, and formed no adhesions.

As already mentioned, I at first thought it might be connected with the cæcum, but excluded this owing to its great range of movement. As events proved, this opinion was really the correct one, the great mobility being due to a long mesocolon.

I finally came to the conclusion that the case was one of cancer of the ileum, for the following reasons:—

1. Its size, shape, and consistency. It did not seem to increase in size, but a slight increase is difficult to estimate, and these tumours may be of slow growth.

2. Its position and range of mobility.

3. The persistent colicky pains and periodicity of their onset, which I regarded as due to difficulty of the intestinal contents passing the cancerous constriction low down in the ileum. These cramps, however, proved to be due to a simple stricture between cæcum and colon, which a fæcal mass, diagnosed as a cancer, could not pass.

Under treatment the patient's health improved considerably, although the daily attacks of colicky pain continued.

She was seen in November, 1905, by Mr. Parry, who favoured

my diagnosis, and in that month she was admitted to the Victoria Infirmary and underwent operation. I am indebted to Mr. Parry for the following description of the operation:—

Operation (30th November, 1905).—The abdomen was opened through an incision midway between umbilicus and pubes, and the cæcum, which was freely movable, was brought into the wound. It was found to contain a large fæcal concretion, of the size of a hen's egg, which was freely movable in the cæcum, and was easily broken up by pressure of the finger and thumb. As no part of it could be dislodged from the cæcum, it was presumed that a stricture was present. No thickening nor narrowing, however, could be made out in the colon above the seat of the concretion. Believing that another mass might be present, the hand was introduced for the purpose of examining the rest of the bowel, when several bodies were noted, which on pressure emitted a peculiar grating sound, in a loop of the ileum lying in the pelvis. This loop was drawn out, incised, and several large plum-stones removed from it, the wound being then closed by a purse-string suture. Nothing further being discovered, attention was once more directed to the broken-up mass in the cæcum, which was removed through an incision, and had the appearance of having been in the bowel for some time.

On examination of the interior of the cæcum a stricture was revealed, through which a bougie of the size of a lead pencil could be passed. The incision in the cæcum was continued through the stricture into the colon, when it was seen that the stricture was of an entirely simple character.

In the closing of the wound of the bowel, the first suture picked up the tissues at the upper and lower angles, thus making the wound a transverse one, thereby increasing the diameter of the bowel at the point where the stricture had occurred. The abdominal wound was closed by the introduction of deep and superficial sutures.

Recovery was uninterrupted.

I saw the patient recently. She is doing well and has practically been free of the persistent colicky pains from which she so long suffered. How long the fæcal concretion had lain in the cæcum, over and above the eight months I had it under observation, it is difficult to say, but it must have caused a considerable amount of obstruction, as it would act like a bullet valve against the narrow stricture in the bowel.

MEETING V.—28TH FEBRUARY, 1906.

The President, DR. J. K. KELLY, *in the Chair.*

I.—SPECIMENS.

A. BY DR. SCOTT M'GREGOR.

Multiple myomata of uterus with hydrosalpinx.

B. By DR. S. J. M. CAMERON.

1. Specimen of uterine fibro-myomas complicated by carcinoma cervicis.
2. Specimen of fibro-myoma of the ovarian ligament—ovary uninvolved—Fallopian tube stretched on the surface of the tumour. Chief symptom was ovarian pain produced by pressure of the tumour on the ovary.
3. *Chorio-epithelioma.*—The chief mass of the tumour was situated at the fundus. This growth had penetrated right through the uterine wall, the fungating portion on the peritoneal coat being enveloped by omentum. Blood-clot was present between the omentum and the uterus. A smaller nodule was present in the lower part of the uterus. Secondary deposits were found in the lungs. There was a history of abortion.

C. BY DR. J. M. MUNRO KERR.

Cystic tumour of broad ligament removed during labour.

D. BY DR. J. K. KELLY.

1. Tubal pregnancy.
2. Fibroid tumour of uterus.
3. Fibroid tumour of uterus, with tubes and ovaries.

II.—CASE OF CÆSAREAN SECTION FOR RACHITIC PELVIS.

BY DR. JAMES LAURIE (GREENOCK).

On Wednesday, 11th May, 1904, I was asked by Dr. Russell (the patient's medical attendant) to see a case requiring

craniotomy. The woman had felt ill from Monday, and been in labour from the night previously. I found her to be a young woman, 27 years of age; height, 4 feet 8 inches.

This was her second pregnancy, and Dr. Russell had to perform craniotomy and evisceration before he could extract the fœtus in the first pregnancy, which occurred eighteen months previously.

I saw and examined her about 4 P.M. There was a dirty vaginal discharge; she was in constant pain—necessitating the giving of chloroform. Examination revealed a narrow pelvic brim and large promontory; the head could be felt high, and bobbed on the finger; no attempt at being engaged; the conjugate measured under 2 inches.

The fact that the discharge was at least not sterile, the great distance the head was from the outlet, the narrow conjugate, and the possibility there was of the child being alive, decided me to advise Cæsarean section rather than a vaginal operation, as I considered the risk of sepsis by the vaginal route greater and more difficult to deal with than would obtain by an abdominal section.

Operation was arranged for 8 P.M. Instructions were given to have all available kettles filled and boiling, and the district nurse would call and do the rest.

With the exception of a vaginal douche given by the nurse, no cleansing or preparation was attempted until the patient was under chloroform. The hands, having been washed in soap and water and one-half per cent lysol, were gloved, the vagina well cleansed with lysol, douched with saline, the pubes shaved, and the catheter passed. The gloves were removed and the abdomen and thighs thoroughly cleansed with soap and water and lysol, shaved, and finished with turpentine and spirit, and covered with gauze soaked in spirit. Our hands and arms were again washed and soaked in permanganate and oxalate solution, and finally rubbed with sterile gauze soaked in spirits of wine.

The incision was made in the middle line, and the uterus was found slightly rotated to the right. This was rectified and maintained by Dr. Hunter Kay, who steadied the uterus. Large gauze pads were packed around the uterus and into the pelvis. The uterus was incised without the aid of pessary or elastic ligature, membranes exposed, and incision extended by straight blunt-pointed scissors. The child was extracted, apparently dead, but lived for eighteen hours, the placenta and membranes removed; the uterus meanwhile being compressed by Dr. Kay. The uterus was now raised

and everted, and hot saline solution poured into it. Bleeding was slight. The uterine incision was closed by boiled silk sutures, about eight being used. The tubes were cut between ligatures, and raw surfaces touched with pure carbolic. The abdominal cavity and pelvis were mopped with gauze soaked in saline, and closed by through-and-through silkworm-gut sutures, sponged with spirit, and dressed with dry sterile gauze. On the second day the lowest suture was found to have given way and a loop of bowel protruding. This was washed with saline and replaced, and gave no further trouble. The stitches were removed on the twelfth day. The patient was kept in bed for a month. She is well, and has no abdominal hernia; wears a belt. She is four days ill at her periods, but loses a great deal more blood than she used to do.

The operation was performed in the kitchen of a small three-apartment house.

I have to thank Drs. D. Russell and Hunter Kay for their assistance at the operation, and Dr. Conner for his services as chloroformist.

III.—TWO CASES OF OPERATION FOR INCOMPLETE RUPTURE OF THE PERINÆUM.

By Dr. James Laurie (Greenock).

The cases to which I wish to draw your attention for a few moments are ones which suffered from a laceration at their first birth. In neither case was the rent stitched, and in both cases similar conditions were present, viz., rectocele, with discomfort and invalidism. The vagina was lax, admitting easily the closed fist, and prolapse of the uterus was present. In case Mrs. A, the uterine prolapse was more advanced than Mrs. B, although Mrs. A had had only one child and Mrs. B three. In both the sphincter was intact, but the perinæum only measured about half an inch.

The operation adopted was one advised by Pryor,[1] and consists of denudation of the vaginal mucous membrane over a triangular area, the apex of the triangle being at the highest point of the rectocele, the sides of the triangle passing external to the lateral retracted angles, the base, of course, being the muco-cutaneous border of the vaginal outlet.

The denudation is performed with scissors curved on the flat, assisted by two fingers placed in the rectum to steady

[1] Pryor, *Gynæcology*, 1903.

the parts and act as a guide. Still maintaining the fingers in the rectum the sutures are inserted, beginning at the apex and passing the needle downwards and inwards, emerging at the middle line; and then passing it upwards and outwards, emerging opposite its point of entrance. Perineal sutures are similarly passed, all one-quarter inch apart and of absorbable material. I used 16-day chromic gut. At the retracted angles Pryor advises fine silver wire, but I used silkworm-gut, and these sutures must be sunk deeply into the retracted angles, in order to get a hold of the retracted fibres of the levator and its fascia. The needle is sunk downwards and outwards, and, in bringing it to the middle line, you ought to feel the resistance that it encounters in passing through the muscle and fascia. In passing it through the opposite side the needle passes downwards and outwards before emerging, and not straight across. The sphincter is now fully stretched, the hands sterilised, and stitches tied after the parts have been irrigated with saline solution. Dry sterile gauze is laid over the parts, renewed in two days, and the nurse instructed to irrigate the parts daily with hot saline. The bowels are kept open by Epsom salts.

This operation, when completed, restores the pelvic diaphragm and gives a perinæum of 2½ inches, reduces the rectocele, lifts the vaginal outlet so that the vaginal axis is below the pelvic brim, and the intra-abdominal pressure forces the anterior vaginal wall against the posterior, and keeps the vagina closed.

IV.—PYELONEPHRITIS COMPLICATING THE PUERPERIUM.

By Dr. R. O. Adamson.

There is nothing, you will agree, more desirable than a normal puerperium. Any abnormal interruption to its course occasions great anxiety, and I am hopeful that the relation of two cases of puerperal pyelonephritis may be of some interest. I have chosen them rather than any cases in which I might feel reason to congratulate myself, as I think the narration of our anxieties and disappointments of more value to ourselves and others.

I make no apology for a bare presentment of the cases, for I understand the object of our meeting is to relate experience, and not to evolve any elaborate thesis. I do not know that these cases are common. The two cases I relate are the only ones I have seen.

CASE I.—Mrs. X., æt. 27, primipara. History before her pregnancy unknown to me; of fair, rather delicate type. An illness, possibly appendicitis, had occurred some years previously.

During pregnancy, was severely dyspeptic in the usual way for several months, and more or less all through the time. Had also an attack of intestinal colic. At the sixth month a slight cystitis developed, and rapidly subsided under boric acid and benzoate of soda. In the eighth month there was pain, apparently caused by a slight urethritis, with some discharge. This was relieved in two days by local applications, and boric acid internally.

Delivery.—A month later, during which time all seemed well, she was delivered of a female child, by forceps, after a fairly severe labour. The perineum required stitching, being moderately torn; some of the membranes had to be removed by the hand. She bore all very well.

Puerperium.—There was retention of urine for three days, carefully relieved by catheter by the nurse. The temperature being 99·4° on the third day, I douched the vagina with weak sublimate and carbolic lotion. On the fifth day there was again retention of urine. The bowels moved well on that day. Progress thereafter was satisfactory; the temperature was normal, but the pulse was noticed on several occasions to be between 90 and 100.

There was some headache on the ninth day, and occasionally thereafter, but the general condition was good, though strength returned slowly.

There was at no time any indication of cystitis. The perineum healed well, save the anterior stitch, which separated, and granulated. She was out of bed on the nineteenth day for an hour. I had left for a short holiday some days previously. On the twentieth day she became sick, and vomited; the tongue was coated, and the temperature rose to 102°, and later to 104°, with headache and prostration. On the twenty-first day there was continuation of vomiting and fever. The uterus was mobile, the os externum closed well, but I douched the uterine cavity thoroughly. Nothing came away. The right kidney was now found to be tender and enlarged, and the urine to contain 1 in 1,000 of albumen, and abundant pus and epithelium, significant of pyelitis. The temperature that day reached 105·2°

I need not detail the treatment applied from the beginning to relieve sickness, fever, and pain. Boric was now being

given in doses of 20 grains each sixth hour, and while taking it the sickness ceased, so that the drug was not in any way the cause of the sickness. On the twenty-fifth day an intense itching urticarial rash developed over the body, with great irritation in the vulva. Salol and quinine were substituted for boric acid. On the twenty-sixth day a large amount of shreddy purulent matter was observed in the urine. There was no cystitis, the symptoms of this being absent, and the bladder was washed out several times. After the first washing the fluid was returning clear. The urine was always acid. The diagnosis so far was acute nephropyelitis, and possibly the bursting of an abscess in the kidney. By the twenty-eighth day there were chilly feelings in the afternoon, rise of temperature, and more pain in the right flank, and a further focus of infection in the kidney was considered probable. She then took 60 grains of salol daily, and 12 grains of quinine. In two days more there was decided improvement. A slight carboluria developed, so half the salol was replaced by urotropine.

By the thirty-fourth day the temperature and pulse were normal, and the violence of the illness had been for days abated. Convalescence was now entered upon. There was still, roughly speaking, 1½ oz. of pus in the twenty-four hours, and examination revealed tubercle bacilli, and other organisms resembling bacillus coli communis. The examination for tubercle bacilli was made because the case cleared up so slowly. Santol oil, creosote, guaiacol, and iron were now given at various periods. By the forty-eighth day the pus was much less, and she was getting up daily. The presence of tubercle bacilli was several times confirmed by different observers. The drugs mentioned were given in large doses. Tubercle bacilli were never abundant. General progress was good after this, though there was inconvenience from muscular weakness and retroversio uteri. The bladder was douched out from time to time. No tubercular mischief in any other part of the body was detected.

Seen by other medical men, the diagnosis of a mixed tubercular infection of the kidney was sustained. Change of air and general tonic measures were adopted. Pus gradually disappeared from the urine. The presumption was that the focus of mischief had healed, or, more likely, that it had become shut off from the active channels of the kidney and the ureter. A year later she was wonderfully well, and I believe she has so continued. I have omitted many details of treatment for the sake of brevity.

While the exact etiology of this illness is uncertain, the presence of former cystitis and urethritis, the retention of urine subsequent to delivery, and the use of the catheter are significant. There was apparently a tendency to genito-urinary infection. While the bladder was not directly involved at all, it seems likely that from it or the urethra a lymphatic infection upwards by the vessels of the ureter gradually reached the pelvis of the kidney, and there, possibly meeting with some latent tubercular focus in the kidney, started the acute mixed infection.

I considered that the action of salol was decidedly favourable in this case, when pushed to a slight degree of carboluria.

CASE II.—Mrs. A., ii-para, æt. 29, was perfectly healthy in every way during the pregnancy; especially were there no signs or symptoms of cystitis or urethritis.

At labour the vertex presented right occiput posterior, and rotated backwards. Pains were good, descent steady, and eventually I shelled out the head in that position, under deep anæsthesia, without tear or bruising.

The puerperium up to the fifteenth day was perfectly normal, save for the use of the catheter for four days. This was carefully done by a good nurse, and thereafter there was no trouble, nor symptoms of any genito-urinary disorder. On the evening of the fifteenth day a slight rise in the temperature occurred, and this was maintained on the sixteenth day, and increased to 102·4° on the seventeenth day. I could find nothing, but as she complained of a slight pain in the right lumbar region, and the thorax being unaffected, I had a specimen of urine drawn off by catheter. It contained albumen, about 1 in 1,000, blood-cells, granular and epithelial casts, abundant pus cells, and many columnar epithelial cells, suggestive of the renal pelvis. There was no evidence of cystitis. From the signs, and the region of the pain, I concluded the right kidney to be affected. About 10 grs. of boric acid four times daily had no effect for two days, but the symptoms, though distinct, were not alarming. The bowels had been freely moved, and on the nineteenth day the temperature was falling. The urine had been and continued acid.

On the twentieth day the symptoms recrudesced, and salol in 15 gr. doses was now given every four hours, and 10 grs. boric acid alternately every four hours. From this point recovery was rapid and continuous, and it has been complete.

Now, how did this complication arise? Again the use of the catheter is significant, though all precautions were taken. Whatever and wherein the original focus, in bladder or urethra, I suggest there was an ascending lymphatic infection along the ureter. There were no tubercle bacilli in the urine. I regret I did not determine the actual organism present.

If these cases have a lesson it is this—that during pregnancy investigation should be made periodically of the urine for pus, and, if necessary, of the urethra and bladder; that if any cystitis or urethritis arise, they should be persistently treated beyond apparent recovery, and carefully watched; that in the puerperium the use of the catheter, as we all know, must be scrupulously correct (*inter alia*, are we to leave it to the nurse?); that if the catheter be used then boric acid or salol, or both, should be at the same time administered as prophylactics; that, if complications in the urinary tract do arise, the use of these two drugs very freely, along with other treatment indicated by the special features of the case, is likely to be beneficial.

V.—CASE OF MEASLES IN A MULTIPARA AT END OF PREGNANCY, LABOUR OCCURRING ON THIRD DAY OF FEVER.

By Dr. Arch. T. Campbell.

Mrs. M'D., æt. 28, was going about as usual near the end of her pregnancy, when measles were very prevalent in the district, and a few days after having been in contact with the mother of a child who was suffering from measles she showed symptoms. The temperature was about 100°, and she had the typical rash, with bronchial catarrh and a severe hacking cough. On the third day of the attack she complained of pains, and on examination it was evident that labour had commenced. Labour lasted for about fourteen hours, and as she felt rather weak, and the os being dilated, chloroform was administered and a healthy male child delivered by forceps.

With the exception of a very troublesome laryngitis the patient made an excellent recovery, and was convalescent on the twentieth day. The infant remained free of any infection, the mother not being allowed to nurse him.

VI.—TWO CASES OF HYDRAMNIOS.

By Dr. James Craig.

If we define the word "hydramnios" as a condition of things in which we have an excessive secretion of liquor amnii, with a number of attendant symptoms, in the pregnant woman, that will be perhaps sufficiently practical for the purposes of this short paper. No doubt a great many refinements and modifications of this term might be included here, such as hydrorrhœa gravidarum, hydrops amnii, &c., but too much finessing and subdividing often only confuse the issue and overcloud the object of our enquiry.

Case I.—The first case I shall speak of is that of a woman in the fifth month of pregnancy, who thought her condition so much advanced that she was afraid of making any mistake in the engagement of the nurse. It was her fourth pregnancy, and she felt so much different from that of previous occasions that she wondered if any mistake had been made. On talking over matters with her at the bedside, I elicited the information that two or three weeks ago a pale watery fluid had come away in small quantities for two or three days, but she attached no importance to it, thinking it only urine which had dribbled away. On examination I found the fundus of the uterus above the umblicus, spreading out on either side as she lay down on her back. It was soft and easily compressible, and rhythmic contractions could be seen now and again. On deeper palpation, the harder elements of the fœtus could be felt, and the body could be pushed from one side to the other. On examination *per vaginam* the cavity was felt to be very moist, probably from a heightened activity of all the glands there, and the os was felt large and spongy, and so open that you could touch the membranes and have a very exaggerated form of ballottement. To my mind there was no doubt that the condition was one of hydramnios, and after giving some simple instructions, explaining the matter to her, and asking her to let me know occasionally how she was keeping, I left the house. In the evening of that same day I was summoned hurriedly to this patient, and found the floor pretty well saturated with fluid. As she sat at tea, she explained, she felt something give way, and this was the result. As there were no pains, and the child seemed to be alive, I left, and called next morning to find her very well

indeed. I kept her in bed two or three days, and then allowed her up to her duties. Between the seventh and eighth month of this same woman's pregnancy I was called to her again for the sudden escape of a large quantity of fluid. The child being still alive, and no pains, I did not think it judicious to interfere. When she reached the ninth month of pregnancy her condition was such that locomotion was impossible, and she had to lie in bed. Near the close of the ninth month her breathing became bad and sleep was impossible. When I spoke about induction of labour, her friends were opposed to it and would not give their consent. Two or three days afterwards, when labour started naturally and the membranes ruptured, the nurse told me she thought a miniature flood had taken place. I had advised her previously about the large quantity of fluid which would come away as the " waters," but all the vessels she had ready were much too small for the large amount of fluid which came. The case terminated with the birth of a healthy baby boy, and the mother's recovery was quite uneventful. There was no great bleeding, and no excess of lochial discharge.

CASE II.—The next case is somewhat different from the previous one. The former patient was stout and tall, but this one was small and thin. The present pregnancy was her sixth, and the other pregnancies in which I had attended her were remarkable for nothing very special. In the pregnancy before this one, the little girl born had a bad nævus of the upper lip, which broke down and had to be operated upon. I was called to see her, when she was eight months and a week pregnant, on account of orthopnœa and excessive dropsy of the body, even the face being swollen. She was sitting up on a chair-bed, with her two hands on each side of her for fixation of the trunk, such as one sees in asthmatics, and the look on her face was a mixed one of anxiety and despair. In this case I was prepared to find something wrong with the heart or kidneys, or both, but I was disappointed, because both these organs seemed perfectly healthy. On looking at the abdomen, she made some remark about twins, but to my mind the abdominal contents were more likely to be triplets or quadruplets. It was enormously distended, and I am sorry I have not the original notes to give you the accurate measurement. In this case there were no rhythmic contractions of the uterus, and the body inside could not be moved from one side to the other. There had been the most

obstinate constipation for some time in spite of taking certain medicine. On examining *per vaginam* the membranes could be felt protruding down through the os and as thin as a wafer. The presentation seemed quite a natural one. She also had incontinence of urine on account of pressure on the bladder; indeed, it often dribbled away from her unconsciously, and its presence to her was indicated by the smell. The condition of the woman was such as to instigate one to interfere at once. When one sees a case like this, one has an instinctive longing to adopt some active means of treatment. But private practice is a very much different thing from hospital work, and one has always the impassable barrier, on many occasions, of the patient's friends to break down or get over by diplomacy. Patients, as a rule, are fairly easily handled, but their friends on many occasions are the greatest difficulties one has to contend with. In this case, however, the *vis medicatrix naturæ* came to my aid again. Probably on account of my repeated examinations the uterus got stimulated to greater contractions, and labour came on naturally. The case went on a very long time on account of the uterine inertia from over-distension, but terminated naturally with the birth of a girl. After waiting about forty-five minutes on the detachment of the placenta I had to introduce my hand, when I found it hanging by the membranes in the upper part. Convalescence was slow, but everything went on quite naturally, except that there was a very profuse lochial discharge for some weeks afterwards.

These are two typical cases of the symptoms of excess of liquor amnii as met with in general practice. But there are a great number of lesser forms of this condition. A good many of these long, tedious, delayed labours, with slight uterine contractions and a continual oozing of liquor amnii, must be classed in this category, and fail to be recognised until one is called into the actual scene of labour. How much better would it be could we see these patients occasionally before the actual labour. I give such people as much seasonable advice as possible when they call to engage me for their confinements, and, when in doubt, I insist on examining them at their own homes. One often feels the want of a leaflet of some kind, such as the Public Health Department of Glasgow gives to people who have infectious disease in their homes, or such as is given to patients at many dispensaries at home and abroad in regard to the details of treatment. If this

Society could draw up such a thing, with a few hints to parturient women as to the indication of certain symptoms, I am sure it would be a great boon to the general medical practitioner. The ignorance of even the intelligent section of the community, amidst which we practise, on even the veriest details of treatment is simply appalling. If an ordinary medical practitioner were to draw up a leaflet of such a kind, containing sage advice to the parturient woman, his colleagues would be apt to smell something unprofessional in the novelty; and he himself would naturally shrink from it as being something in the nature of an oblique method of advertising himself. Notwithstanding all this, if the practice of our profession is but the commonsense application of methodised knowledge, we should hail every method with satisfaction which brings the lay mind into closer fellowship with the professional one. The parturient woman is too often under the influence of people who are not always the most accurate in giving advice, no matter how well-intentioned they may be. What we want is some leaflet drawn up to point out the advantages of cleanliness, loose clothing, regulation of bowels, condition of urine, exercise, &c. A few of these simple facts becoming widely known would be of considerable service to such people, and would certainly be of incalculable benefit to the practitioner in enabling him to get variations from normal in an early stage when they could be more easily and more rationally dealt with.

MEETING VI.—28TH MARCH, 1906.

The President, DR. J. K. KELLY, *in the Chair.*

I.—SPECIMENS.

A. BY DR. ROBERT JARDINE.

Uterus removed to prevent pregnancy after Cæsarean section, which had been performed previously in the same patient. The operation was complicated by dense adhesions in front of the uterus, the result of the former operation.

B. By Dr. John Lindsay.

Acardiac monster (fœtus amorphus anideus) delivered from the uterus of a cow along with a calf, at full term, from the same ovum as the accompanying twin.

C. By Dr. J. K. Kelly.

Fibroid uterus undergoing sarcomatous degeneration.

II.—NOTES ON INTERESTING CASES.

By Dr. A. J. Wilson.

I.—*Apoplexy during labour?*

Personal history.—The patient, Mrs. M., ii-para, was 22 years of age, and six months pregnant. There was nothing unusual about the previous labour. She was always strong and healthy, and never had any serious illness; no history of rheumatism, Bright's disease, syphilis, or "fits" of any kind.

There are only two points in the family history worth noting, viz., that her father died of phthisis and her brother from general paralysis of the insane.

History of illness.—On 13th July, 1904, the patient was quite well, and went to bed as usual without making any complaint; but in the early hours of the morning her husband was startled by some one clutching at his arm, and he awoke to find that his wife was in what he described as a fit. He noticed, moreover, that she had vomited some dark-coloured material which he thought contained blood. A neighbour who was called in noticed also that the patient had passed urine involuntarily. There was no recurrence of the fits.

When I arrived I found the patient in a comatose condition. The temperature was slightly raised, and the pulse rather quicker than normal, but there was nothing unusual about the pupils, and there was no œdema of the face or ankles, and no evident paralysis. The heart sounds were pure. As the patient was six months pregnant, my provisional diagnosis was "eclampsia," and I gave her 2 drops of croton oil and an enema of soap and water, and shortly afterwards 15 grs. of chloral. I called several hours later, and was told that no more fits had taken place, but she was still unconscious, and I decided to induce labour.

The os was found to be sufficiently dilated to admit two fingers, and it was comparatively easy to dilate the cervix manually, perform version, rupture the membranes, and

extract the fœtus. I did not pass a catheter before inducing labour, as the patient had passed urine involuntarily shortly before; but in the afternoon, on passing an instrument to get some urine for examination, I found the bladder empty. As there was no return of consciousness I injected about a quart of saline solution subcutaneously, ordered hot poultices to the loins, had the patient surrounded with hot water bottles, and gave a hypodermic injection of pilocarpine.

Next day there was a slight return of consciousness for several hours. She seemed to realise what was going on to a certain extent, and made attempts to answer questions, but the sounds she made were quite unintelligible. She was constantly tossing about from side to side, and twitching of the hands and face was noticed occasionally. The suppression of urine continued till the night before she died. There was incontinence of fæces.

On the evening of the second day the coma gradually deepened, and on the third day of illness it was noticed that there was complete paralysis of the left arm and leg, and deviation of the head and eyes to the opposite side. Later on, very marked Cheyne-Stokes respiration came on, and this continued until the patient died the following morning. Unfortunately a *post-mortem* examination was not permitted.

Diagnosis.—Was this a case of uræmia? Uræmic coma often commences with vomiting and convulsions, and the suppression of urine is almost pathognomonic of uræmia; but Osler says that uræmic coma almost never develops suddenly, and the temperature is almost always subnormal, whereas in this case it was raised. With regard to the paralysis there are certain cases of uræmic hemiplegia or monoplegia which cannot be separated from those of organic lesion, and which, *post-mortem*, show no trace of gross disease of the brain. Osler quotes an instance in which a consultation was held upon the propriety of operation in a case of hemiplegia believed to be due to subdural hæmorrhage, but which was shown by *post-mortem* to be uræmic. Cheyne-Stokes respiration is also common in uræmic coma, and the question arises, Was this case simply one of uræmia or was it uræmia *plus* cerebral hæmorrhage? On the other hand, may it not have been a case of eclampsia ending in cerebral hæmorrhage? Hæmorrhage into the brain may occur during an eclamptic fit or may happen even after the fits have entirely ceased. Dr. Jellett records a case he attended where the patient died of cerebral hæmorrhage, which apparently took place thirty-six hours after the last fit. It is not always easy to distinguish

between eclamptic and uræmic fits. Norris and Dickinson draw attention to the fact that a patient may have uræmic convulsions during pregnancy without eclampsia, and they quote an illustrative case :—

"A patient, seven months pregnant, was admitted to hospital unconscious with uræmic convulsions; on establishing the secretion of urine and purging the patient, consciousness returned, and the following day a seven months' fœtus was stillborn. Symptoms of uræmia supervened, but recovery finally ensued, and the patient manifested no symptom of eclampsia, and had no œdema."

When one is called to a patient known to be pregnant, who is taking fits or in a condition of coma, I think it is most important that a catheter should be passed without delay. If the bladder is found to be empty and the patient has not urinated recently, the case should be treated as uræmia. If, on the other hand, plenty of urine is drawn off, this should be examined as soon as possible. A mere examination for albumen is not sufficient, because it is well known that eclampsia may occur without albuminuria, and in an ordinary case of apoplexy albumen may be found in the urine. Without demonstrating the presence of tube-casts one cannot say with certainty that a given case is renal in origin. If the patient is young and there is no œdema, and one is told that the patient has always had good health, one is apt to take it for granted that he is dealing with eclampsia, whereas it may be a case of acute uræmia. Moreover, if hemiplegia has occurred before the medical attendant arrives, and he neglects to pass a catheter, he may easily mistake the case for apoplexy pure and simple, and miss the renal element.

It is well known that apoplexy may occur during sleep, owing, as Gowers says, to the difficulty with which the blood flows from the brain in the recumbent position; and whilst cases of uræmic monoplegia, or even hemiplegia, of a transient nature may occasionally be met with, it is rare indeed to find complete hemiplegia with conjugate deviation of the eyes apart from cerebral hæmorrhage. Called to see such a case after the paralysis has occurred, one might even mistake it for epilepsy. We all know that an epileptic fit may cause cerebral hæmorrhage, and this patient's youth, the absence of premonitory symptoms, and the fact that she passed urine involuntarily at the time of the fit, would support this view.

In puzzling cases of this kind, therefore, it is important to pass the catheter, to note the tension of the pulse, and

to enquire as to a past attack of scarlet fever with renal dropsy. The specific gravity of the urine should be noted, a search made for tube-casts, and the quantity of urea estimated.

II.—*Tumour of the naso-pharynx in a newborn child.*

The mother is 27 years of age. She has been married five years, and this is her fourth child. She states that her health has always been good, but she has a somewhat strumous look, and is often troubled with blepharitis marginalis. There is no history of syphilis, and she has never had any miscarriages. All the other children are more or less rickety. She had no accident while carrying this child, but had to stay in bed for two months previous to the birth on account of phlebitis.

The child, a female, was born on 20th January, 1906, and, apart from the tumour, looked very healthy and strong. Its size was above the average. The face had a most unusual appearance. The nasal bones were bulging, and a small cystic portion of the tumour projected from the right nostril. The mouth was wide open, and a soft mass, covered with skin and almost as large as the infant's fist, filled the mouth and projected between the upper and lower lips. The tongue was pressed backwards and downwards out of sight; indeed, the woman in attendance expressed the opinion that the child had no tongue. On examination the tumour was found to be growing from the naso-pharynx and *apparently* attached to the base of the skull. It practically filled the naso-pharynx and passed through a large cleft in the palate by means of a pedicle, and then expanded in the mouth into a bilobed mass the size I have indicated.

A radical operation was, of course, out of the question, but I thought that if the mass in the mouth were removed to allow the child to be fed, she might survive, and with Dr. Campbell's assistance I transfixed the pedicle close to the palate, tied it with a double ligature, and removed the mass from the mouth as close to the ligature as was safe. This allowed the tongue to come forward into its natural position. The breast milk was drawn off, and the child was fed with this, and also with cow's milk and water. Everything went well for eight days, but on the ninth day the child became perceptibly weaker, and gradually sank. She might have lived had she been properly nursed, but there was no proper attendant, and she got only a few spoonfuls of milk at irregular intervals.

The portion of tumour removed was rather soft for a fibroma, and I thought it was probably a fibro-myxoma, a rare kind of

tumour which sometimes occurs in youth and which usually becomes sarcomatous in character, but the microscopic sections which Dr. Duff kindly prepared for me show that it is really a dermoid. Skin, hair follicles, and myxomatous tissue can be demonstrated, and I also discovered a small piece of a tooth, which proves, beyond doubt, its dermoid character.

When one recalls the development of the face and buccal cavity, one sees how readily a portion of surface epithelium may become sequestered and form a dermoid, but I think such a growth as I have described must be very rare in the new-born child, and especially in association with an almost complete cleft of the palate.

I thought at first that this was a unique case, but find that a somewhat similar one is reported by Sutton (Clerault's case): Male infant born with tumour inside the mouth, mistaken for the tongue. Cleft of the soft palate. Tumour grew from middle of hard palate, lobed, and covered with silky hairs. Surface covered with true skin with sebaceous glands, but no papillæ. Interior composed of adipose tissue, with fasciculi of striped muscle fibres.

III.—*The influence of heredity, and especially paternal heredity, on multiple pregnancy.*

Fecundity seems to be influenced in certain instances by heredity, and some very striking examples have been reported. Valenta published an extraordinary case of hereditary fertility. "The woman, who was married at 14 years of age, during a married life of twenty years gave birth to thirty-two children in eleven pregnancies. There were twice quadruplets, six times triplets, and thrice twins—twenty-six boys and six girls, of whom twenty-eight were born alive and four dead. Her first essay in parturition was at the age of 14, and yielded quadruplets. Her mother was one of quadruplets, and she had borne thirty-eight children. There was also a history of plurality of births on the father's side."

In the *Lancet* (1895, vol. ii, p. 1429) Dr. Macphail, of Coatbridge, also gives an account of a case, in which he traces the plurality of births through five generations.

First generation—

A. A woman had twins.

Second generation—

B. Daughter of A. had twins twice and triplets once.

C. Twin son of A. begat twins, and married a woman whose brother's wife had twins.

Third generation—
D. C.'s daughter had twice twins.
E. C.'s son's wife had twins.

Fourth generation—
Supposed to be blank as regards plurality of births.

Fifth generation—
F. D.'s granddaughter married a widower whose first wife had twins to him, and she herself had twins.

But my case, which was published in the *British Medical Journal* (1902, vol. ii, p. 249), not only shows the influence of heredity in multiple pregnancy, but is also a remarkable instance of a twin tendency transmitted through the male members of a family.

Mrs. M., primipara, aged 31, gave birth to triplets (two girls and a boy). She had been married six and a half months, and this corresponded with the size and general appearance of the children, who were all born alive, but died about twelve hours after birth. Thirteen months later—that is, nineteen and a half months after marriage—twins were born (two girls), who were also premature (seven months). One of the twins died from broncho-pneumonia when it was 3 months old, the other is still living and in good health. Thus, there were five children born in a little over a year and a half from the date of marriage. This unusual fertility is evidently on the husband's side, because his mother had twins twice, and the wives of five paternal uncles all gave birth to twins. Since reporting the case, I have discovered that several cousins of the husband have also begotten twins.

Dr. Helier, of Leeds, saw the report of my case, and referred me to a case published by him in the *British Medical Journal* (September, 1901, p. 632), in which he raises the question whether *paternal* influence can determine twin pregnancy. A family consisted of four brothers, A., B., C., D., without sisters. A. became the father of twin sons and three other sons. B. was father of twin girls and three other children. C. was father of twin sons. The eldest of the twin sons of A. has again become the father of twin sons. There is no history of twins on the female side in any of the marriages in the family, and this remark also applies to my case. Here, again, is a case where a man himself, his father, and three paternal uncles have begotten twins.

In an article by Strassman some remarkable instances of paternal influence are given. A Parisian man had twenty-one children in seven years by his wife; moreover, he seduced

a servant girl who bore him triplets. A Lille workman had eighty-two children by his two wives. A Lille merchant had forty-two children by his two wives. Frequently quoted is the case of the Russian peasant Wasilef, who by his first wife had—

Quadruplets, ...	4 times.
Triplets, ...	7 „
Twins, ...	16 „

and by his second wife—

Triplets, ...	2 times.
Twins, ...	6 „

Strassman gives a table, which he calls Winckel's table, in which the twin tendency is traced on the *male* side through four generations.

First generation—
A man begat—

Second generation—
(*a*) a son, (*b*) a son, (*c*) twin girls, (*d*) twin sons.

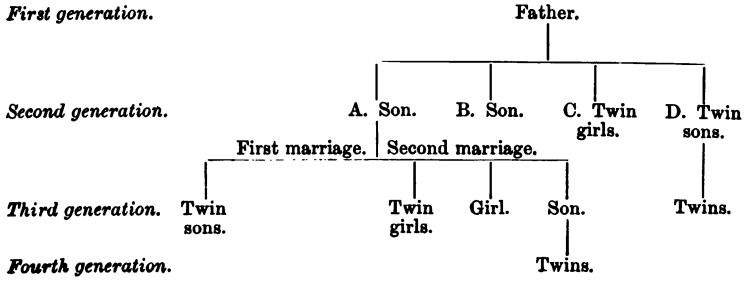
Third generation—
Eldest son of second generation married twice. He had twin sons by his first wife; his second wife gave birth to (*a*) twin girls, (*b*) a girl, (*c*) a son.

The twin sons of the second generation also begat twins.

Fourth generation—
The son of the second marriage in third generation begat twins.

The girls of the second generation had only single children by their marriage.

WINCKEL'S TABLE REPRESENTED DIAGRAMMATICALLY.



Paternal influence in multiple pregnancy is a difficult subject, but the cases I have mentioned are suggestive. Multiple fœtation is said to be due to (1) the impregnation of a single ovum which contains two or more germinal vesicles, or in which the formative material of the germinal area divides; or (2) the impregnation of two or more ova which were contained either in one Graafian follicle or in separate follicles, the latter being situated either in one or both ovaries. Possibly the male element may be able to influence the number of ova ripened at the time of conception, but it is difficult to see how this can happen, and the whole subject, from the nature of the case, is shrouded in mystery.

III.—THE RESUSCITATION OF THE APPARENTLY STILLBORN.

By Dr. James Weir.

Apparently stillborn children may enter on their separate existence in any one of several conditions—considered purely from a clinical standpoint with reference to the general physiognomy.

The child may be of a natural healthy colour and be in a semi-comatose condition from some cause or another. If the delivery has been accomplished with the aid of profound chloroform anæsthesia, the prognosis as regards the life of the infant is eminently hopeful—more so, by far, *cæteris paribus*, than in other cases with similar clinical characteristics in the delivery of which little or no anæsthesia had been employed.

Chloroform affects the child but little, if at all, unless the mother has undergone profound narcosis for a lengthened period. In such cases, however, there is always to be considered the fact that deep and prolonged anæsthesia is only requisitioned in cases in which there is some difficulty, and the cause of debility in the infant may in great measure be the operative means employed in the delivery. I am convinced, however, that there is one class of apparently stillborn children in which artificial narcotisation of the mother is the sole factor in the causation of the condition of the child; and I am supported in my conviction by my experience of Cæsarean births. In the case of all such births (certainly not a large number) at which I have been present, the child has in every instance, although to all appearance well-formed and healthy, been born apparently moribund, and requiring the employment of artificial respiration for its resuscitation.

So frequently, indeed, does this appear to be the case that

it would seem to be one of the essentials of the operative technique in Cæsarean cases that a highly experienced physician be held in reserve to look after the interests of the babe so rudely "ripped from out its mother's womb." Artificial respiration by Schultze's method, combined with some surface stimulation, is usually sufficient, and seldom does it require to be prolonged for any great length of time.

Schultze's is by far the best method, in my opinion, of performing artificial respiration in infants; Marshall Hall's is of little use, as a child is born with the elastic equilibrium of the thorax in the position of expiration. Sylvester's method is fairly effective, but Schultze's brings about the greatest variations of atmospheric pressure within the thoracic cavity. Schultze declares that 25 c.cm. of air passed through the lung at each inspiration in his experiments on newborn children.

The movements of Schultze are easily performed if the child is properly grasped, and combine to form an agent for the restoration of suspended animation whose power cannot be too highly estimated. This method acts directly upon the chest wall, and induces marked and regular variations of the atmospheric pressure within the thoracic cavity.

Expiration is rendered very complete from the amount of pressure brought to bear on the thoracic contents from all sides—on the lateral aspects the necessary pressure is exerted by the hands of the operator, while a like force is brought to bear on the diaphragm by the abdominal viscera gravitating to and falling upon it, and, furthermore, being forced thereon by the curve of the child's body lessening the natural capacity of the abdominal cavity. That inducement to inspiration is also very considerable is obvious from the fact that in the movement inviting it the grasp on the shoulders of the child is relaxed, so that the pressure of the operator's hands is removed from the chest; the shoulders are braced back by the supporting fingers on the dorsum of the child, so that the chest is expanded laterally; and the thoracic cavity is increased longitudinally by the trunk becoming straightened out, and by the falling away of the abdominal contents from the diaphragm to their natural situation.

Besides the high order of the inducements to respiration in Schultze's movements, two other advantages of the method are worthy of mention. The first is, that in the position in which expiration is compelled, gravity favours the escape of mucous secretions from the upper air-passages, and so affords a freer vent for inspiration, besides preventing the indraught of

noxious material into the pulmonary air-spaces. The other advantage is gained by the rush through the air to which the child is subjected when being swung from the inspiratory to to the expiratory position, and *vice versa;* this, in my opinion, is a powerful factor in restoring animation, and is essentially connected with Schultze's method alone. The rush of cold air on the surface of the body is bound to have a strongly stimulating effect, for it is a matter of common experience to have the child making an attempt at inspiration when in the position of expiration, and also frequently while it is being swung from one position to another.

Although there is undoubted virtue in this swish through the air, it cannot be lauded as an unmixed good; the objection to it lies in the fact that the cold air must be potent in reducing the surface temperature of the body, and in thus inviting the risk of a surface chill, which, in so delicate an organism as a newborn child, would be a matter of very serious moment. Fortunately, however, there is usually a means at hand wherewith to combat too serious a depression of the surface warmth, in the more frequent exhibition of the hot bath, which thus comes to be an essential adjuvant of Schultze's method of artificial respiration.

As has been said, the class of cases under consideration, viz., those in which anæsthetics would appear to play the chief *rôle* in the etiology of the condition, is probably the least difficult with which we have to deal—Schultze's artificial respiration, combined with hot baths and perhaps a little cold affusion, some ordinary surface stimulation, and possibly the exhibition of a little alcohol internally, are, as a rule, all that is required.

Before leaving the subject of anæsthesia in its relation to stillbirth, I should like to ask the Fellows of the Society if they had noticed any difference in the condition of the child when anæsthetics other than pure chloroform have been used to anæsthetise the mother. The reason I ask the question is that during the last three years or so I have almost invariably used A.C.E. or C.E. mixture in my obstetric work, and the feeling is growing upon me that I have less difficulty with the children now than I was wont to have when I used chloroform alone.

When no anæsthetic has been employed in the delivery, or when anæsthesia has been requisitioned merely to mitigate the agonies of the second stage of labour, or to assist in the relaxation of a rigid os or an undilatable perineum, stillbirth is not due in any degree to the poisonous effects of the

anæsthetic, and the child is born, if alive, in a state of lividity or a condition of pallor. It is not intended to dogmatically assert that without anæsthesia infants may not be apparently stillborn with a natural colour, nor that in anæsthetic cases children in this condition may not be either livid or pale; what is here stated is what is commonly met with in practice, it being still reserved as a truth that all degrees of both conditions may be encountered.

In livid or apoplectic cases the cutaneous surface is discoloured, and may be bluish-violet or almost black, the face is swollen, the eyeballs project, the conjunctivæ are congested and may be lustreless, and the pupils are contracted or dilated according to the stage of the carbonic acid poisoning. They are widely dilated in profound asphyxia, and contract on the re-establishment of respiration. The condition of the pupils is a fair guide in prognosticating the final issue. A pupil gradually dilating, in spite of the best efforts to establish pulmonary respiration, is significant of a fatal issue being probable, while a contracting pupil enables one to regard the case more hopefully.

Asphyxia neonatorum is probably in almost all cases the result of the suspension of the placental circulation. The treatment of the condition consists, therefore, in attempting to avert suffocation by putting the pulmonary exchanges into action as soon as possible. It is a pleasant reflection when one is face to face with a case of asphyxia neonatorum that a newly-born child can live quite a long time without respiration; it is, indeed, a recognised fact that the younger an organism is the longer can it exist without breathing.

If the asphyxiation is very profound the heart speedily stops, for in many children apparently stillborn the limit, beyond which respiratory power is lost, is very nearly reached, and as long as the circulation goes on the blood becomes poorer and ever poorer in oxygen. Thus it comes about that the medulla, which normally reacts to venous blood, does not now do so, on account of its being practically paralysed by the excessively venous condition of the blood. The ordinary stimulus to respiration being thus in abeyance, it becomes necessary to apply some other means whereby the medullary reflex may be induced to react.

These means partake mainly of the nature of surface stimulations, *e.g.*, Schultze has recommended brief immersion up to the neck in cold water as being very efficacious in such cases.

The principles of treatment, however, must always largely

depend upon the stage of asphyxia which the child has reached, and this must be gauged wholly and rapidly by the signs which exhibit themselves on the surface.

If the child is breathing, however feebly, and the heart impulse is still fairly strong, all the child will probably require is a strong external stimulation, which may at once be obtained by the cold immersion of Schultze.

If, however, the asphyxia is more profound, and the medulla is so profoundly poisoned that it cannot be made to react to surface stimulation, other means must be found to re-establish its excitability. This can only be accomplished by bringing richly oxygenated blood to the medulla by way of the circulation. The aims, therefore, which inspire treatment are twofold—first, setting in motion the pulmonary exchanges, and, secondly, stimulating the flow of blood in the vessels.

In profoundly asphyxiated children it has been recommended to deplete to some extent by allowing a small quantity of blood to escape from the severed umbilical cord prior to ligature.

It may be that there are cases in which this treatment might be of some avail, especially where the venous engorgement is so extreme as to render livid the entire cutaneous surface, and where the vessels are evidently so gorged as to impede the blood flow; but it is precisely in these cases that depletion is difficult, for the blood is practically stagnant in the vessels, and the propulsive power of the heart is inadequate to cause a flow of blood from the cord. This manœuvre has also other disadvantages. It is very difficult to estimate exactly how far depletion should be carried in many cases, for the lividity, by which the amount of blood drawn must be regulated, may be limited to the face.

The pressure brought to bear on the child by the mother through the uterus, in her efforts to expel the trunk and legs of the infant after the head has been born, will, as a rule, if the completion of the birth is at all delayed, determine a rapid congestion of the head and face, and yet the condition of the trunk and limbs may be one of grave anæmia on account of the pressure to which these parts have been subjected. Why deplete at all, when the relief of the congestion may be quite satisfactorily achieved by inducing the infant to respire? In most cases, as will be obvious from what has just been said, depletion of the cranial engorgement alone is necessary, and with the first inspiration a vascular tract is opened up in the pulmonary area, which should effectually relieve the congested brain of any dangerous excess.

These are possibly but slight objections to the operation of depletion, and the mere mention of such exquisite refinements may seem to some to approach the region of transcendental hair-splitting; but my contentions are that time is of overwhelming importance in this connection, and that depletion of an infant to such an extent as to relieve the congestion of the face, by which alone one may have to judge of the true condition of affairs, may precipitate a child, whose body has been already seriously depleted by compression, into a state of grave oligæmia.

The heart may be pulsating slowly in these cases, and the circulation almost at a standstill; but the cardiac pulse is quite often fairly strong, and the stimulus afforded by inserting the finger into the pharynx for the purpose of removing mucus will frequently not only induce the infant to attempt to breathe, but also stimulate the cardiac muscle to quicker action.

There are, in a large percentage of these livid cases, a firmness and tonicity of the muscular system, and a general appearance of vitality, which urge the accoucheur to launch every arrow in the quiver of his knowledge and experience in the cause of resuscitation. The physiognomy is not, indeed, that of the robust, easily-born child, whose ruddy bloom and lusty cry afford such intense relief to the tired accoucheur, but neither is it the physiognomy of the pallid, asthenic child, whose muscles are flaccid, whose heart is flickering, and whose body is quickly cold with the chill of death.

The causes of death in infants born in a state of asphyxia are all practically inoperative once the child breathes. Cerebral congestion, impending apoplexy, and carbonic acid poisoning are all relieved when the lungs are fully inflated, for then are opened up a source whence the vitiated blood may be purified by oxygen, and a vascular area for the accommodation of the unequally distributed blood.

Among the various means commonly adopted for the restoration of vitality in the apparently stillborn, exhibited, as a rule, empirically, and with a haphazard ringing of the changes, are painful surface stimulation, such as slapping the chest and pinching the skin, friction of the surface with evaporating lotions, such as whisky, administration of alcohol internally, hot and cold water applications to the skin, in the form either of immersion or of affusion, and a crude form of artificial respiration performed by compressing the child's chest at intervals. Of all these manœuvres, hot affusion to the precordium is, in my experience and opinion, the only one which

should be seriously considered. It is most efficacious in stimulating cardiac action when the heart is weak and slow.

Accoucheurs have held by these methods for a long time, and perhaps in the whole field of therapeutics there is no morbid condition for the relief of which less original work has been undertaken, and fewer new methods vaunted, than in asphyxia and syncope of the newborn child. This may be in part accounted for by the fact that apparent stillbirth is not an everyday occurrence in the practice of most men, so that it is usually only after a man has had a run of such cases with untoward results, and has begun to be regarded in his district as a slaughterer of the innocents, that he begins to cast around for some information to augment his knowledge of the subject. But this sterile waste of earliest pediatrics is not without an occasional oasis. Some years ago, Laborde communicated to the Académie de Médecine de Paris a method of stimulating respiration in the newborn by means of rhythmic traction of the tongue, and explained its success by its reflexly stimulating the respiratory centre. Traction is performed at the rate of from eighteen to twenty times per minute in the adult, and rather more frequently in the newborn child. Laborde's method has been used with conspicuous success in cases of suspended animation from chloroform, and less frequently, but also with success, in cases of suffocation from drowning and hanging. More recently it has been successfully applied in the asphyxia of the newborn. In my own experience, it has been found to be a powerful reviver in cases of deep cyanosis of the newborn, and it also deserves a thorough trial in the syncopal form of apparent stillbirth, in which Schultze's artificial respiration has for long been the commonly used form of treatment, as it permits of the exhibition of hot baths and hot affusions which are so important.

This method of Laborde was at first believed to raise the epiglottis, but it is questionable whether it has much effect in this way, and the bending back of the head and tilting up of the chin, so much used in the case of adults under anæsthetics, are utterly useless in children. To raise the epiglottis thoroughly, if such is necessary, the base of the tongue must be depressed, while the entire organ is pulled over the chin.

Powerful respiratory stimulant as I believe Laborde's method to be, it is one which I use frequently, though not to the exclusion of Schultze's. Its convenience and ease of application are strong points in its favour, and render it highly suitable for exhibition while other means, such as

baths, are being employed, when of necessity Schultze's movements are suspended.

Mouth to mouth insufflation is by most accoucheurs, and, I think, deservedly, relegated to the limbo of the past. Instrumental insufflation is of no recent date of introduction, but it has many disadvantages. Instruments are, as a rule, not easy to introduce properly, and they become readily displaced; even when introduced they do not prevent the reflux of air, nor do they readily indicate when they have left the windpipe and entered the œsophagus. A recent addition to the armamentarium for direct insufflation would seem to be based on scientific principles. Invented and introduced by Dr. Ribemont-Dessaignes, it has attached to it a bag, whose air contents measure 28 c.cm., and which thus insufflates an amount of air proportionate to the pulmonary capacity. The inventor claims for his instrument that it is "easily introduced, it prevents reflux of air, it indicates at once when it is not in proper position in the larynx, while the use of the bag obviates any danger of the rupture of pulmonary vesicles."

It is just possible, however, that as Dr. Ribemont-Dessaignes not only assures us that his instrument is easily introduced, and that its curve ensures its retention in the respiratory passages, but also assures us that it indicates at once when it is not in proper position in the larynx, it may be that we have not yet surmounted the difficulty of occasionally inflating the stomach by mistake—an accident exceedingly embarrassing to any heart that is at all feeble.

The most obvious objection, of course, to instrumental work is that the necessary appliances are not always at hand, so that methods like Laborde's, in which no instrument is required, are of the greatest practical value to the accoucheur. A procedure of which I have now made considerable use has this merit, but it will not be time wasted, I think, if, prior to considering it, the details of treatment of apparent stillbirth are recapitulated, as they are to be employed, in something like chronological order.

The child when born should immediately be placed in a position favourable for observation and any manipulations that may be necessary. The decubitus in which the mother has been delivered seems to me to be in all respects the most suitable for the child, viz., the left lateral, but in the opposite direction, so that the infant's head is towards the mother's feet. In this position the general appearance of the child may be readily noted, and the strength and frequency of the cardiac impulse observed. In this position, too, gravity to a

certain extent prevents any foreign material which may be lurking about the buccal cavity from finding its way into the larynx, while the semiprone position, into which the child naturally falls, favours the escape of this foreign material from the mouth. An attempt should then be made with the finger to remove any further secretions which may be still lying about the mouth and larynx. The insertion of the finger not uncommonly induces a forcible expiration—a cough or a sneeze—which expels any foreign matter from the deeper air-passages into the upper, so bringing it within reach of the finger.

Should no respiratory effort be apparent, surface stimulation by slapping and pinching the skin may be good practice for a short time, together with artificial respiration performed by compressing the chest at intervals, with sudden relaxation of the compressing hand, or preferably by Sylvester's method.

It will depend upon the gravity of the case how long these manœuvres are to be continued—if the infant shows signs of returning vitality they may be persevered in until complete recovery has been established. But if there is no evidence of improvement in a minute or two, the cord should be quickly ligated and severed without any loss of time over depletion. Some recommend, and I believe it was Schultze who formulated the idea, that the child ought to be left in communication with the cord so long as any heart-beat is perceptible, but this seems to me to be going too far in the direction of expectancy. Such a practice might have a place in cases where the placental circulation is intact and uninterrupted; but if the placenta has separated (an occurrence which, as a rule, takes place soon after the birth of the child, but which is not easily ascertained until the placenta has escaped from the uterus into the vagina), placental respiration is thrown out of action, and leaving the child unseparated cannot serve any useful purpose. Therefore it is advised to cut the cord as soon as it has become apparent that all stimulation which is practicable so long as the cord is undivided has proved futile. With hot and cold water at hand in separate vessels, the infant should at once be plunged into a hot bath—at a temperature high enough to stimulate and yet not scald. The temperature of the bath should not, I think, exceed 120° F., which may be gauged approximately by the hand.

We have it on the authority of Dr. D'Oyly Grange, of Harrogate, that normal saline solution is less irritating to the cuticle than plain hot water, so that it is possible that a bath at a somewhat higher temperature than 120° F. might be used

without prejudice to the skin, if the water be medicated with about a teaspoonful to the pint of ordinary chloride of sodium.

With the child in the hot bath, hot affusion to the chest, especially over the cardiac area, should be practised, and cold water allowed to play on the head. Hot affusion to the precordial area is a powerful cardiac stimulant, and has been used with marked success in cases of chloroform syncope. In the case of apparent stillbirth it would, *prima facie*, be of much greater service in those cases which are characterised by pallor, and where shock and syncope are the salient morbid conditions, but it is a measure by no means to be neglected in cases of asphyxiation where the cardiac force is at all inclined to flag.

Occasional dashing of a handful of cold water on the face and chest may be practised, but, if used at all, the employment of cold water should, I think, end here.

To return for a moment to the treatment by cold immersion as recommended by Schultze, it seems to me to be difficult to reconcile this procedure with that other recommendation of the same writer—to leave the child in communication with the cord so long as any heart impulse is perceptible.

If it be intended that the child should be allowed to remain in connection with the placenta until the heart has failed, and thereupon be immediately plunged into a cold bath (and that is the only interpretation I am able to put on the suggestions), and that, too, after the surface temperature has been gravely depressed by exposure, the treatment, in my opinion, verges on the desperate. It may be, and sometimes is, successful in cases where the heart is pulsing fully and fairly rapidly, where the body-heat is well maintained, and where the coma is not too profound; but as a routine treatment, even for livid cases, it is, in my view, not to be entertained.

Complete immersion up to the neck in cold water is, at the best, a "kill or cure" procedure, and ought only to be exhibited as a last resource. Heat is the natural environment of the newborn child, and the shock of a cold plunge, however momentary, on a fragment of humanity but newly extruded from its nest at blood-heat can readily be conceived to be terribly severe. I do not deny the stimulating powers of cold immersion, which will very frequently initiate respiratory movements, but looking to the after-results of this treatment, in my experience it cannot compare with hot bath treatment, which seems to me to be in all respects safer, more reliable, and more in accordance with commonsense.

The great virtues of the hot bath, besides that of direct stimulation of the surface, may be categorically stated to be (1) its power to raise and maintain the body-heat, and (2) its action in dilating the superficial blood-vessels, so assisting in the physiological depletion of the dangerously congested brain, and enabling a fresh current of blood to course through the vessels and bring life to every part.

The influence of posture on the head condition should not be neglected. The infant should be supported in the bath in an almost upright position, with the head elevated as much as possible, the reverse being recommended as the proper decubitus when the child is pale and collapsed; prolonged immersion, however, is quite unnecessary. The stimulating effects of the temperature of the bath are obtained practically at the time of immersion, which should, therefore, be continued only sufficiently long to raise the surface heat of the body.

While the infant is in the bath the operation of compressing and relaxing the chest may be continued, or, better, Laborde's rhythmic traction of the tongue practised, and on being lifted from the bath and hastily dried the child should be subjected to a few movements of Schultze's artificial respiration, with every precaution against undue exposure. As has been already said, the rapid rush through the air incidental to Schultze's method is potent in reducing the surface temperature rapidly, even when the operation is being conducted in a room at a fairly high temperature, and a surface chill might ensue with all its terrible sequelæ of internal congestions.

Nothing is more to be deprecated than too protracted an exhibition of Schultze's movements without intermission. Not infrequently one hears of cases of stillbirth in which the accoucheur keeps up Schultze's movements for the greater part of an hour, until he feels as if his spinal column were about to snap in the dorso-lumbar region, and the sweat pouring from his brow is the only hydropathic means employed to maintain the child's surface warmth—until he has, as a matter of fact, permitted the little one to become so chilled that he is in reality dealing with, not a case of suspended animation, but a case of inevitable death.

How easily this might often be averted by the exercise of a little commonsense, and the more frequent and intelligent use of the hot bath. A period of Schultze ought never to embrace more than a dozen movements or thereabouts without intermission, performed at the rate of eight to ten times per minute.

As regards the use of alcohol externally and internally

there is not much to be said. In this respect I am almost a total abstainer, for it seems to me that its use externally can do no good, and may even cause harm on account of its evaporating qualities chilling a large cutaneous area.

Internally I exhibit alcohol whenever the child is able to suck; before that ingestion is impossible, and smearing it over the buccal mucous membrane is but a waste of precious time. If it is desirable to obtain some of the stimulating effects of alcohol, the surest and quickest method is to inject it high up into the rectum.

There is one manœuvre which I make considerable use of, and which, so far as I am aware, is novel in this field of therapeutics, or at least was so when I began to practise. The procedure is simple, and, in short, consists in putting into action the genito-anal reflexes, which, in the conditions of coma with which medical practice is familiar, are about the last reflexes to be abolished. The power of the anal reflex in stimulating respiration has for long been recognised by surgeons and obstetricians. Anæsthetists are very familiar with it, and know that it is bad anæsthetic practice to push chloroform while a surgeon is dilating the sphincter ani for the purpose of doing some rectal operation. To give you some idea of the application of the procedure to the newborn infant apparently dead, I feel that I cannot do better than give the details of the case upon which I first practised it.

While working at the Glasgow Maternity Hospital I was on one occasion summoned by students to attend a case of delayed second stage of labour caused by a narrow pelvis. One of the students administered chloroform, and all seemed to be going well, even to the familiar "crowing" respiration induced by the introduction of the blades of the forceps; and here is illustrated exceedingly well the power of this form of respiration, and also the power of the genito-anal reflexes as a respiratory stimulant, for no sooner was the left hand withdrawn from the vagina than the patient immediately ceased to breathe—poisoned by an overdose of chloroform, which had not been sufficiently carefully administered during the period of forced respiration. On account of the narrowness of the pelvis the forceps had been rather difficult to get fixed in good position, and this having been accomplished, I was loth to remove, and have the trouble of reapplying them. Another consideration which weighed strongly with me was the fact that the woman was lying in a narrow box-bed of the hygienic condition so commonly met with in maternity hospital out-door practice—a bed in which the

effective and comfortable performance of Sylvester's artificial respiration would have been out of the question. I therefore decided to try in the first place the effect of stimulation afforded by pulling the head forcibly through the vagina. Nothing more was required—"crowing" inspiration was induced by a strong pull, and, by alternately exerting and relaxing traction on the instruments, this form of respiration was maintained until natural respiration set in, placed the patient once more within the safety zone of anæsthesia, and relieved our tension.

This case has always been of supreme satisfaction to me, for here it was, too, that I first tried anal irritation for the resuscitation of the newborn child. The infant, delivered after a stiff pull which had probably saved the mother's life, appeared to be lifeless. The face was pale and placid, the eyelids half closed, and the lips, nose, and extremities of a bluish tint and rapidly becoming cold. The neck, trunk, and limbs were soft and flaccid, and the heart, as indicated on the thoracic parietes, was slow and weak in action. The child was at once placed in a hot bath, as hot as could be borne by the hand; and water of a like temperature was played over the precordial region. When the surface warmth improved, a short period of Schultze was tried, but had to be quickly discontinued on account of its rapidly cooling effect on the surface.

I know not what inspired it—probably my recent experience with the mother, combined with a feeling of hopelessness as regards the life of the child—but I at once baptised the child to satisfy the religious instincts of the friends, and then surreptitiously, while the child was in the bath, inserted my finger into the rectum. Greatly to my surprise, and totally at variance with the atonic condition of the rest of the muscular system, the sphincter ani was found to be fairly tonic and firm, and in the light of more mature experience I have further learned that such a condition of the sphincter, especially combined with resiliency, is a pre-eminently favourable sign in cases of suspended animation. Immediately on this muscle being put on the stretch, the child emitted a short, feeble, almost noiseless gasp, accompanied by a good deal of spasm of the extraordinary muscles of respiration, relapsing into its former flaccid, lifeless condition as soon as the finger was withdrawn; re-insertion was productive of a fuller and noisier respiration, and before the "crowing," for which I was so anxiously longing, was established, it was manifest that the

heart's action was accelerated and the impulse more forcible. By the time that respiration was fairly full, the physiognomy had undergone a marked improvement, the complexion had taken on a more natural tint, and the lividity of the extremities had almost passed off. With the body heat fairly maintained by the prolonged immersion in the hot bath, a period of Schultze was exhibited for the purpose of expanding the lungs more freely, and after about forty-five minutes, the child was consigned to the lap of an attendant to work out its own salvation with the aid of a little alcohol.

The application of anal manipulation is, in my belief, only efficacious when the subject is unconscious from some cause or another, but not unconscious to the extent of complete abolition of the anal reflex. It was not responded to in one case of opium poisoning in which I tried it, and which eventually died, but much was not expected of it there, for in dilating the sphincter it was found to be in so atonic and non-resilient a state that nothing could be hoped from it. From what has just been said it will be realised that the successful application of the manœuvre depends on the tonicity and resiliency of the muscle. Anæsthesia would seem to be the domain *par excellence* in which it is most signally successful, and probably the most suitable cases among the newborn are those in which carbonic acid is the cause of the coma.

The last advantage of the anal operation which falls to be mentioned is one of considerable moment to the accoucheur; it is in connection with prognosis in cases of apparent stillbirth. I have found it of value in this sphere, for by its means one may, I believe, prognosticate with an accuracy as sure as exists in any ordinary prognostics whether the infant is likely to benefit by resuscitating measures.

The condition of tone of the sphincter is the basis for prognostic purposes; a firm, resistant, resilient sphincter is of good omen, while the reverse is presaged by a lax sphincter, through which the finger slips easily, and which may, as a rule, be almost invariably depended upon as heralding a fatal issue.

Having considered at so great length the class of cases in which lividity is the predominating feature, little remains to be said of the cases in which pallor is the salient sign, except to lay emphasis on several points connected with the treatment. This class includes those cases in the last stage of asphyxia, those suffering from shock and syncope, and those suffering from collapse in which the second stage has been unduly prolonged, and uterine pressure has placed the infant

in a state of anæmia. The clinical picture is very distinctive —the face is of deathly calmness, the skin is ghastly pale, the muscular system is flabby, and the whole physiognomy is one of listlessness, approaching lifelessness. The lips, nose, and ears are cold, the extremities are chilled, and have a faint bluish colouration betraying a flagging circulation; the cardiac pulse is small and straggling, the sounds are soft, and the respiration is suspended. The prognosis, *prima facie*, is much less favourable than in cases of asphyxia at an early stage, and there are cases of this kind where experience whispers to the attendants that attempts at resuscitation will be futile; but, short of a surface condition and general physiognomy absolutely incompatible with life, an effort must be made in all cases, so marvellous are some of the recoveries.

In these pallid cases one might allow a short interval to elapse before cutting the cord, not for the purpose of waiting until pulsation in the cord has ceased, but to allow of the fluid in the vessels being reinforced by pressure of the blood along the cord into the circulation of the child. No matter how the condition is brought about, whether by shock, syncope, or extreme asphyxia, one may look for some slight amelioration of the child's state when the circulation has been toned up by reinforcements of blood from the cord and placenta; but this may not occur. Whether it does so or not, the cord should be cut and powerful stimulation at once proceeded with. The hot bath is requisitioned at a fairly high temperature, and the child immersed in it for a sufficiently long time to determine whether the hot environment is having any appreciable effect on the cardiac impulse. Cold water affusion is quite inadmissible on account of its depressing effect on the animal heat, but the practice of hot affusion to the precordial region is to be highly commended; it is best carried out by pouring hot water from a vessel at a little distance from the chest over the cardiac area exclusively.

The heart having been stimulated, efforts must be directed towards the establishment of free respiration. Laborde's rhythmic tractions on the tongue may be practised the while the child is immersed in the hot bath, but Schultze's artificial respiration is to be exhibited as early as possible.

These pallid cases are those which cause us the greatest anxiety, and which call for the employment of every resuscitating measure known to science or inspired by the exigency of the moment.

Sphincteric dilatation, advocated in the treatment of livid

cases, maintains its position in my practice in the class of cases now under consideration, not only on account of its stimulating effect on heart and respiration, but also, and in extreme cases more especially, on account of its prognostic power.

The child having now reached, if our efforts have been successful, a less anxious stage, with circulation and respiration fairly well established, prophylactic measures should be adopted to prevent a relapse; these should never be delayed.

Maintenance of the surface warmth should be regarded as a prime necessity. The child should be kept in a warm room, and either placed in its crib surrounded by hot bottles or placed in its mother's arms for the purpose of utilising her vital warmth. The maternal heat has the advantage of being most readily exhibited, and the child may be immediately applied to the breast, when, if it is able to suck, the ingestion of a little warm fluid will materially help to sustain flagging vitality.

The decubitus of the child should be carefully chosen when it is placed in bed. If the case has been one of the pallid group, with syncopal attacks still threatening, the head should be kept low and the legs elevated (as one would do in a case of surgical shock or collape) to allow of the feebly beating heart sending the necessary supply of blood to the great nerve centres. Reversed conditions are to be aimed at if the case is one of cerebral congestion.

Meeting VII.—25th April, 1906.

The President, Dr. J. K. Kelly, *in the Chair.*

I.—SPECIMENS.

A. By Dr. J. M. Munro Kerr.

1. Uterus with multiple fibroids.
2. Tubo-ovarian cyst with the fimbriated end of the tube projecting into the cyst.
3. Early deciduoma malignum preceded by hydatidiform mole. The uterus was removed by vaginal hysterectomy.

B. By Dr. Alex. M'Lennan.

Uterus and vagina removed for procidentia uteri; the vagina was closed.

C. By Dr. J. K. Kelly.

Deciduoma malignum following vesicular mole. Uterus, tubes, and ovaries removed by the abdomen.

II.—CASE OF FŒTAL MALFORMATION: EXTROVERSION OF THE BLADDER, PERSISTENT CLOACA, ETC., IN A MALE INFANT.

By Dr. G. N. Turner and Dr. J. Lindsay.

Clinical note by Dr. Turner.

Mrs. R., æt. 28, ii-para. When called to this case I was told an arm presented. On examination, the abdomen appeared normal in shape and size. I found a head in the left hypochondrium, and there was no suggestion of a transverse position.

Per vaginam, the os was well dilated, the membranes not ruptured, and a completely flexed limb presented by a rounded and flattened surface, which was diagnosed as a knee, there being no pointed extremity as would have been the case had the elbow presented. The membranes ruptured during the examination.

The patient was now anæsthetised. With some difficulty the presenting limb was followed up till the foot was reached. At first this gave rise to a feeling of doubt, but it was immediately recognised to be a talipes varus. This foot was brought down. Considerable difficulty was then experienced in finding the other leg and foot, the difficulty consisting chiefly in the fact that the usual guides, viz., genitals, anus, and anterior pelvic wall, were not available. By using the foot already brought down as a guide, and following round the pelvis in the direction indicated, a limb was reached. At first the distance of this from the other limb suggested an arm, especially as it was recognised that there was deformity present, and the digits and tarsus being flattened felt more like a hand than a foot. Having decided that this must be the left leg in an undeveloped condition, it was brought down. This required considerable traction, as the limb was rigid and tended to catch on the edge of the pelvis and pelvic walls in its descent. As soon as it was delivered the child's body

followed immediately. It was then seen that there was much deformity.

The arms were easily taken down. It was now noticed that the cord was becoming torn at its umbilical insertion. There being so much deformity, and expecting the child would not be living, or, in any case, it not being desirable that it should live, a double ligature was placed round the cord, and the latter cut. The head was then delivered in the usual way by traction and flexion combined with suprapubic pressure. The child was laid aside as dead, but in a few minutes it began to breath and cry lustily. The placenta came away easily, and the mother made a good recovery.

On examining the infant we found the upper part to the level of the umbilicus normal in every respect. Below this there was much deformity. The limbs were much as already stated, the right foot being in the condition of talipes varus, the rest of this leg normal in appearance; and the left one short and badly developed. There was extroversion of the bladder, and just above the raw bladder surface a large ventral hernia with the cord running off the apex. A tumour was present over the sacrum, chiefly over the right half of that bone, and about the size of a large orange. This was considered at the time to be a meningocele of the cord, as it was translucent, and it seemed as if one could get a finger into an opening in the sacrum. The tumour, however, was so tense it was difficult to be certain of this. There was also present the condition known as imperforate anus.

At first it was thought that something might be done for the imperforate anus. Dr. Lindsay, however, was of opinion, from his experience of similar conditions, that the retention would not be relieved by operation through the perinæum, and this opinion was justified by the results of the dissection. In view of the other malformations, it was decided to do nothing. The child cried vigorously, and took a little milk and water in small quantities. Some meconium was vomited on the second day, but after this there was no further vomiting. It gradually sank and died on the fifth day.

Apart from the anatomical aspects of the case, its chief interest turns upon the obstetrical diagnosis. While at no time was there any real difficulty or delay, yet at more than one point there was a distinct doubt. On first examining, the presenting part could only be a knee or an elbow, and although a head was felt in the hypochondriac region, there might have been twins. There was also the club-foot, which required care. The greatest difficulty, however, was in finding the

second leg and foot, and the absence of the anterior pelvic wall and genitals, and the wide separation of the sides of the pelvis made the other limb so far away as to lead one to think it might be an arm. The tumour over the sacrum was not recognised before birth, but the hernia was.

Anatomical report by Dr. Lindsay.

The upper part of the body—head and neck, thorax, arms and hands—was normal in external appearance and in its internal anatomy, except for a few minor variations, such as the omohyoid muscles springing from the clavicles and not from the scapulæ. The right foot was in the position of talipes varus; otherwise the dissection of this limb, which was well grown, revealed no abnormality. The left lower limb was dwarfed in the thigh, and more so in the leg region, which was also deformed from curvature of the bones. The foot was full-sized and shapely, but was in the position of talipes equinus. The navicular bone was absent from the tarsus, and the astragalus was displaced to the inside of the calcaneum. There was not a vestige of muscle tissue in the whole of this limb; neither was the psoas nor the iliacus of this side present within the abdomen. Only a thick layer of fat intervened between the skin and the bones. No nerves were found in the limb, but a tubular diverticulum from the meningocele appeared to be the dilated sheath of the great sciatic nerve. A small femoral artery and corresponding vein formed the chief blood-channels.

The left os innominatum consisted of a little more than a full-sized acetabulum, while the corresponding bone of the other side was well formed. The symphysis pubis was opened up to the extent of 5 centimetres in a straight line, and the pelvic attachment of the recti abdominis muscles were in consequence widely separated. The thinned-out linea alba between the diverging recti muscles had yielded to the intra-abdominal pressure, and formed the sac of a cone-shaped hernial protrusion, which had the umbilical cord at its apex, and which was covered with thin skin intimately united to the underlying fibrous tissue. The abdominal muscles were well developed on the right side. On the left they were in their full complement and in their proper relations, but were somewhat degenerated. The lowest recognisable nerve on this side was the ilio-inguinal. On the right a projection of muscle fibres from the internal oblique, the cremaster, ran down to the right half of the scrotum. It was not present on the defective side.

The meningocele.—The laminæ of the last lumbar vertebra were fused with those of the fourth. The laminæ of the sacrum were absent. Through the osseous gap protruded the spinal meninges, the dura mater, and the greatly thickened arachnoid. The lumbar fascia was spread out over the membranes, and covering one side of it were the fibres of the right gluteus maximus. Owing to the fasciculation of the fibrous tissue, and the irregular massing of the subcutaneous fat, the tumour had a somewhat lobulated appearance. The cavity communicated with the subarachnoid space by a narrow orifice. It contained no nerves; but those that belonged to the right limb, and which were well developed, were incorporated with the wall of the sac on its outside.

The intestinal canal.—The stomach was normal. From the duodedum downwards the bowel was greatly distended with gas, but contained only 2 or 3 oz. of a fluid, flaky and yellowish, no meconium. This portion of the intestine ended in a large pouch occupying the sac of the ventral hernia (Fig. I, *A*, p. 226). The pouch seemed to be the cæcal end of the colon, but ileum and colon could not be distinguished by any abrupt change in the calibre of the tube. Two prominent crescentic folds within appeared, however, to mark the site of the ileo-colic valve. Near this, on the wall of the pouch, was a mammilliform projection like the tip of the finger of a glove, which may have been the dilated appendix.

The rectum, beginning as a *cul-de-sac* about the level of the pelvic brim, rapidly narrowed and opened on the posterior surface of the everted cloaca (Fig. I, *R.*). Beginning immediately below and behind this opening, a short canal ran backwards beneath the perinæum, to end at the site of the imperforate anus (Fig. I, *P.C.*). Evidently the lateral perinæal bodies had formed and, uniting in the middle line, had cut off this portion of the cloaca, but had failed to complete the partition between the rectum and the urino-genital sinus. The sphincter ani, transversi perinei, and levator ani muscles were present.

The urinary system.—Both the kidneys and the suprarenal bodies were well formed. The bladder was represented by an expanse of mucous membrane in the pubic region, the postero-lateral areas of which were strongly rugose and very vascular, while the central areas were smoother, less vascular, and had a thinner muscular coat (Fig. II, 2). From this central area there ran upwards and forwards within the abdomen a tube, the urachus, which ended by becoming attached to the blind extremity of the upper portion of the bowel near the umbilicus

(Fig. I, *Ur.*), but without communicating with the intestinal cavity. Its external opening is shown at Fig. II, 3. The difference in character between the several portions of the exposed mucous membrane may have depended on the two-fold origin of the bladder—from the primitive gut and from the stalk of the allantois. Each ureter opened on the bladder surface at a point 4 centimetres externally to the urachal opening and 2 centimetres from the lateral margin of the

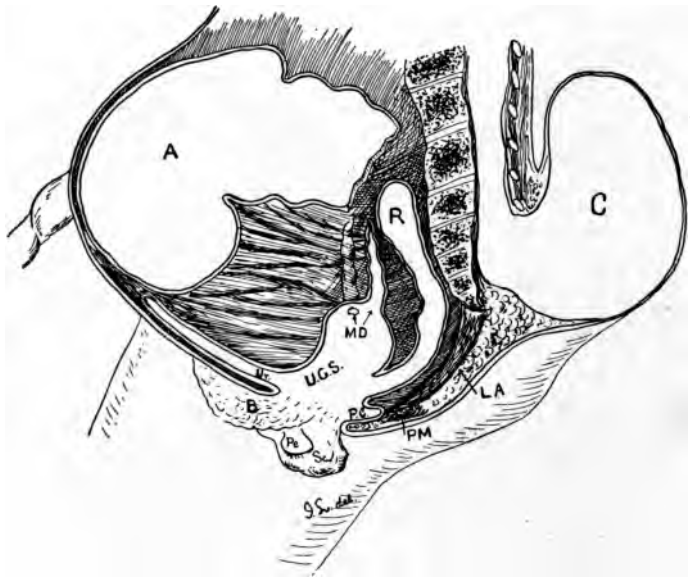


FIG. I.

SAGGITAL MESIAL SECTION WITH THE URINO-GENITAL SINUS REPLACED IN PELVIS.

A, blind termination of upper portion of bowel; *B*, portion of everted bladder; *C*, meningocele; *M.D.*, Müllerian ducts opening into urino-genital sinus (*U.G.S.*); *Ur.*, urachus; *Pe.*, right half of penis; *Sc.*, right half of scrotum; *P.M.*, perineal muscles: *L.A.*, levator ani; *R.*, rectum, beginning as a *cul-de-sac* and opening into the cloaca; *P.C.*, perineal canal.

mucous membrane, the orifice being nearly on a level with the corresponding half of the penis.

The genital organs.—Near the right kidney, external to it and slightly below it, there was a double elevation of the peritoneum. This on section proved to be testicle and epididymis. (Section shown.) The vas deferens from the latter opened into the right ureter about the middle of its length, or, to put the facts in the order of development, the

vas deferens (Wolffian duct) ran directly into the bladder, while the ureter came off as a branch from its inner side, as

FIG. II.

1, ventral hernia; 2, mucous membrane of bladder; 3, opening of urachus; 4, urino-genital sinus everted; 5, 6, Müllerian ducts; 7, left—and 8, right—half of penis; 9, left—and 10, right—half of scrotum; 11, position of imperforate anus; 12, sacral meningocele.

in the embryo about the end of the first month, in which, however, the ureter is still to the outer side of the duct.

(Several sections of the junction shown.) The left testicle remained undiscovered after a long search, until a small body found behind the peritoneum in the lumbar region, and pushed aside as merely a lymphatic gland, was submitted to microscopic examination, when it proved to be testicle and epididymis. The vas deferens could not be traced; but a careful inspection of the ureter failed to reveal any junction of the duct with it, such as was quite plain on the opposite side.

Bulging out between the everted bladder and the halves of the split scrotum, there was a globular prominence (Fig. II, 4), with two small sausage-like appendages (Fig. II, 5, 6). This globular swelling, with its appendages, could be replaced in the pelvis during life and after death. In this position it formed a cavity 2 centimetres in depth, into the lower part of which the rectum opened (Fig. I, *U.G.S.*). The cavity was evidently the urino-genital sinus and ectodermic cloaca, and the appendages, which were tubular in structure and approximately 2 centimetres in length, were the lower ends and only remaining portions of the Müllerian ducts. The ducts hung down into the cavity of the replaced sinus because they had prolapsed through their orifices. This was beyond doubt. In one the prolapse was complete; in the other it was incomplete, the free extremity being within the lumen of the attached portion. (Section shown.) From one side of each of the prolapsed ducts there ran out a fold of peritoneum, the homologue of the broad ligament. Viewed from inside the abdomen, this fold, twisted into a cord, was seen to dip into the inside—originally the outside—of the Müllerian duct, and in the transverse sections was quite conspicuous. The tissues were not in good condition for accurate cytological observation, but the mucous membrane lining the ducts showed quite plainly short tubular glands lined with columnar epithelium. The walls of the sinus itself showed longitudinally and circularly disposed muscle fibres, and the tubular glands in the mucous membrane could be traced from the orifices of the ducts to about the middle of the depth of the cavity of the sinus. In this fœtus, then, there was a largely-developed, bicornuate uterus masculinus.

On the inner side of each thigh there was a cutaneous fold, half of the divided scrotum (Fig. II, 9, 10), and each bore an appendage (Fig. II, 7, 8), half of the split penis, into which could be traced the fibres of one of the ischio-cavernosi muscles.

The right knee presented. There being a club-foot on this

limb, the other limb being dwarfed and widely separated from its fellow, and there being a ventral hernia and malformation of the urino-genital organs, the diagnosis of the position was unusually difficult, but the delivery was easy enough. The malformations found in the infant *post-mortem* were—split plelvis, ventral hernia, extroversion of the bladder, split penis and scrotum (the testicles being within the abdomen), persistent cloaca with largely developed Müllerian ducts (cornua uteri masculini), absence of the greater part of the colon, and sacral meningocele. The dwarfed limb was devoid of muscles and nerves, there being only fat between the bones and skin.

Dr. MacLennan asked if there were any tendons on the toes.

Dr. Lindsay replied that there were not.

III.—CASE OF PARTURITION IN A PATIENT WITH DOUBLE UTERUS, CERVIX, AND VAGINA.

By Dr. John Baird.

In August, 1904, about 5 P.M., I was called to Mrs. M., a primipara at full term. On examination *per vaginam* I found that the vagina was divided antero-posteriorly by a septum which extended from immediately above the meatus to the centre of the perineum and upwards to the cervix. On passing a finger on each side of it, I judged by the feel that it would be about one-eighth of an inch in thickness, and I could not get my fingers to meet in any part, not even at the cervix end, so that as far as I could judge the two passages were completely separate. The right seemed to get wider or more roomy as you passed inwards, while the left got narrower or less roomy. Each had an os at its uterine end, the right os being in the centre, while the left lay more to the side on which the septum was. Both were about the size of a sixpenny-piece, and I could feel no cervix.

I left her, and went back again about 10 P.M. I then found that the os on the left side (the one that was nearer the septum) was dilated to the size of a crown-piece, that the septum had become detached from the upper part of the vagina, and that its edge lay across the open os and against the presenting head. I saw that something would have to give way before the head could descend. Would the septum part down the centre, or would it come away from either side?

If the latter, then I realised that it would likely cause a rent in the vaginal wall, which would very much enlarge on the descent of the head and body. I then sent for Dr. Munro Kerr, who kindly came to my assistance. By the time he arrived the os was about fully dilated, and the edge of the septum still lay across the advancing head, and could not be turned to either side.

Dr. Kerr put two ligatures on the septum, cut between them, applied the forceps, the patient being under chloroform, and delivered her of a stillborn child. On examining her afterwards, he said he could feel two uteri quite distinctly.

She made an excellent recovery. On my last visit I examined her *per vaginam*, and could feel the healed-up edges of the septum.

Dr. Jardine mentioned a case of double uterus and vagina which he had discovered at the third month. The pregnant side was the one which had not been penetrated. The decidua was cleared out from the non-pregnant side. Menstruation had not taken place during pregnancy.

IV.—NOTES ON CASES OF PUERPERAL ECLAMPSIA AND ONE OF INVERSION OF THE UTERUS.

By Dr. W. A. Caskie.

Puerperal convulsions.

Of the accidents which may be said to occur in midwifery practice, convulsions constitute one of the most alarming, probably second only to hæmorrhage or rupture of the uterus.

Convulsions may occur during gestation, at any time in the course of labour, or during the childbed period.

The causes of such an occurrence are so well known to you that it is unnecessary for me to repeat them.

As a rule, there are some premonitory symptoms independent of any history of a previous attack, which, if properly appreciated, may enable the accoucheur or physician to be prepared for such an eventuality. One of the most frequent symptoms is headache referred to the forehead, headache of a persistent or continuous nature not associated at first with gastric disturbance. When accompanied or followed by vomiting or dimness of vision the condition is more critical, but one's attention is usually by this time directed to the œdema which occurs in the feet, ankles, and eyelids.

Giddiness and pain in the stomach and sides are sometimes

present, the skin is usually pale or sallow, and albumen is to be found in the urine as a rule.

When the fit occurs it commences with snoring, and staring or fixation of the eyes, the neck is turned to one side, while the skin of the neck and face is tense, causing dilatation of the mouth and eyes. The wrists become flexed, with the fingers and thumbs turned in, the body begins to shake, the lips and eyelids to quiver, and then general spasms of the body ensue.

As the spasms subside the features alter, the face becomes livid, and the breathing stertorous. The patient remains in a comatose condition for some time after the fit subsides.

According to Dr. Boxall, who introduced a discussion on eclampsia occurring in pregnancy at the meeting of the British Medical Association at Leicester, (1) albuminuria is more likely to occur, and that in an aggravated form, in women pregnant for the first time; (2) eclampsia occurring in pregnancy is almost invariably associated with albuminuria; (3) other factors determining the liability to eclampsia are the disorganised functions of other organs (notably the liver), nervous irritability, and nerve irritation.

According to the same authority, the mortality from puerperal convulsions per 100,000 births in Scotland from 1883 to 1903 inclusive ranged from 28 to 55. This is somewhat higher than in England and Wales, and is more than double that of London, while Ireland holds an intermediate position.

When the head is arrested on the perineum of a neurotic patient, there is the greater probabity of a convulsive seizure from the hypersensitive condition of the maternal organs. Should the patient be above 30 years of age, and the maternal tissues dry and rigid, the likelihood of such an occurrence may be apprehended, especially if there is any history of a previous attack. Even when the patient is stout and the pains vigorous, any alterations of the features, especially lividity of the lips, occurring in one who has had swelling of the lower limbs in the later months of pregnancy, may indicate the advent of a convulsion, though it may not occur for some hours after the birth of the child.

Convulsions may not occur in subsequent pregnancies, and in primiparæ the mental condition is not without influence, especially in unmarried women, in the causation of the fit.

With one exception, all the cases that have occurred in my practice have been primiparæ, and of these the urine was albuminous in all but one. Death occurred in three cases, and

the forceps were employed to accelerate the labour in five cases.

Should the ordinary remedies fail to arrest or alleviate the spasms, recourse may be had to chloroform and to venesection. In three of the cases the latter was adopted, but in only one with any success, and that might have relation to the convulsions occurring several days before the labour commenced.

In the discussion at Leicester previously referred to several of the speakers testified to the good effect of the administration of repeated doses of morphine in addition to the injection of saline solution subcutaneously or *per rectum*.

In some cases, especially in primiparæ, when there is much œdema with suppression of urine, it is incumbent on the medical attendant to induce labour by dilating the os, introducing a bougie into the uterus, and rupturing the membranes during a pain.

If the progress is slow and the case urgent, it is justifiable to use the forceps when the head of the child is within the cavity. I adopted this plan in one case which had a melancholy termination to both mother and child.

The patient, a young woman 28 years of age, seven months pregnant with her first child, had come to the coast for change of air, and took ill a week afterwards. She had been complaining for some time with headache, restlessness, and vomiting, and had noticed that her feet and body were swollen.

On examination, her feet, legs, and abdomen were œdematous, the enlargement of the latter extending to the xiphoid cartilage, causing one to suspect that she was at the full time. The left leg was particularly swollen, and the under eyelids had been puffy. Little urine had been passed, and there was none to examine. The fœtal pulsation was unusually distinct on placing my hand on the abdomen. There was dyspnœa on exertion. Two days afterwards she had a convulsion. I learned from her husband she had severe headache the previous evening, and had been very restless. The bowels had moved the day before, and she had vomited half a basinful of frothy, greenish matter.

When I arrived about 4 A.M. she was semi-conscious, but confused, and was under the impression she had fainted.

She was ordered a teaspoonful of Rochelle salts in hot water every half hour until one ounce had been given. She had another fit at 7 A.M., and also after I had given her an enema of castor oil and turpentine. After recovering from this she was very restless, and was with difficulty restrained in bed. A draught of chloral was given, and for three hours there was

no other attack till between 10 and 11 A.M. She then became semi-conscious, knew where she was, and wished repeatedly to pass water, without any result. Only one ounce of urine was obtained on using the catheter, and this became turbid on heating.

Her head was shaved, and a bladder of ice applied. The respiration became snoring, and she was convulsed again about noon, and had other two attacks before 2 o'clock. The severity of the convulsions seemed modified at first by the introduction of chloroform, but later no treatment adopted seemed to have any effect. I examined *per vaginam*, and was able to dilate the cervix to the external os, and as the patient's condition seemed critical I introduced a catheter into the uterus to induce labour.

As the os remained rigid, though dilated, she was bled from the arm. It then seemed that the lower blade might be introduced, but the attempt to insert either blade was accompanied by a gush of blood. Ultimately, however, both blades were applied and locked. Traction was made and the head advanced—but before it could be extracted the neck gave way, much to my chagrin—then the hand and arm. During all this time the hæmorrhage continued, and the patient's strength rapidly diminished. All attempts to turn failed. I introduced my hand and passed it over the abdomen, which was turned to the front, and swollen like a drum, either with gas or fluid. Though I could reach the feet, the uterine spasm was so great that I could not overcome the contraction even with external manipulation, nor could I hitch down the presenting shoulder. By this time she was moribund, and she died shortly afterwards.

In a retrospect of more than a quarter of a century's practice this was the most melancholy case I have attended. In attending it I had the assistance of two practitioners of much experience.

The second fatal case was a patient of a brother practitioner's whom I attended during his absence, but who was present at the birth of the child. The patient, 22 years of age, and in her first pregnancy, was a thin, sallow woman. There was no anasarca, and no history of albuminuria. She had been complaining for some time before her confinement, and was unconscious when I saw her. As the os was patent and dilatable, I ruptured the membranes, applied the forceps, and extracted the child with some difficulty. During this time she had a convulsive seizure. During the two following days she remained in a somnolent condition, from which she could

be roused to put out her tongue and answer questions. The pulse was small and rapid, 144 per minute; the respirations also became quick, the eyes were clear and the pupils unaffected; and death occurred next morning, the third after the confinement.

The third and last fatal case was that of a young Italian woman, also pregnant with her first child, who consulted me shortly before her confinement, complaining of headache, vomiting, and, most significant of all, occasional dimness of vision. Shortly afterwards she became ill, and had convulsions during the labour. All efforts and remedies employed to arrest and modify the convulsions were unavailing. Venesection and chloroform had little effect, and labour was completed by the forceps, but consciousness was not restored, and death ensued not long after the birth of the child.

In many cases the termination is favourable to the mother, but not to the child. Having the same symptoms, resulting in one or more convulsions, consciousness is restored, and the secretion of the urine established and increased so that the labour may be completed and the patient recover. In one case, a primipara, above 30 years of age, two convulsions occurred four days before the confinement. Two days after the convulsions, though she was sensible, I bled her from the arm to 30 oz., which was followed by improvement in her condition and an increase of urine with diminution of albumen. Next day but one I received a message that the waters had broken, and she was delivered of a stillborn child before I reached the house, the labour lasting less than five hours. Though the drowsiness continued, with some snoring respiration, for a short time after delivery, she recovered satisfactorily, and on the following year was delivered of a healthy child without any previous unfavourable symptoms or complications.

Inversion of the uterus.

About 3 o'clock in the afternoon I was asked to visit a patient, Mrs. W., who had been confined by the midwife about half-past three that morning, after being in labour a day and a night.

On visiting Mrs. W., she was lying in bed on her left side, with head low, and the sheet and bedclothes were unusually soiled with discharge. She stated how long she had been in labour, and that she was still suffering pain of a bearing-down nature. On examination, the upper part of the vagina was occupied by a firm, round mass, which indicated at once some abnormal condition. The touch was different from the

soft, velvety feeling of the cervix of the gravid uterus, the surface was round and irregular, and in the centre, where one would expect the os, the finger came upon a smooth part, which felt like the distended membranes during a pain. The condition of the abdomen negatived the idea of twins, and it seemed to me that I had to treat with either inversion of the uterus or that a large part of the placenta was still retained. Learning from the neighbour who was in attendance that the placenta had been removed by the midwife and cast out, I sent her to fetch it. After washing it from the material in which it had been buried, I found it entire, but on inspecting its maternal surface it appeared as if it had been adherent in several places.

On examining Mrs. W. again, I concluded that the irregularities on the mass or tumour were due to tufts of coagulated blood where the placenta had been attached. Having an important visit to pay in the country, I left with some reluctance, prescribing a draught of twenty drops of tincture of opium in some water, and cold compresses to be applied to the abdomen.

It was nearly 9 o'clock before I visited again. She was in the same condition as on my visit in the afternoon. Before operating, the urine (about 8 oz.) was withdrawn by catheter, which could only be inserted about an inch and a half. She had taken very little nourishment all day, and had lost a considerable amount of blood, and it seemed judicious that an attempt to reduce the inversion should be made without chloroform. As she lay on her left side the body of the tumour was compressed by the hand for some time, with a sensible diminution of its bulk, and with frequent gurgling, due to the escape of blood from the compression. In a little while I reached the neck of the tumour with my fingers. No ring or unusual contraction was detected, but I could diagnose the reflection of the neck of the tumour into the vagina. Compressing the neck of the tumour for a little the body was pushed up in the direction of the umbilicus with some force, turning the patient on her back and placing my left hand on her abdomen. I then turned her again on the left side, continuing the pressure and rotating the tumour as in the reduction of hernia, and was delighted to find reduction slowly but surely being effected. With my left hand on the abdomen I could detect the finger tips of my right hand in the vagina. The part first reduced was the cervix, and as soon as this was effected the body and fundus followed. No jerk was felt or sound heard, but I felt

the thrill similar to that conveyed by the emptying of the uterus after childbirth caused by involution, and the cavity barely contained my fingers.

After reduction the patient expressed herself as relieved, and, applying a compress and bandage, I prescribed 40 minims of liq. ergotæ ext. in a little brandy and water before I left. The amount of discharge in this case was so great as to saturate sheet, feather bed, and mattress. The floor was also stained, some drops falling from the ceiling of the house below.

For the following two or three days she was nervous and had little sleep, waking in confusion and fear; but though the pulse was accelerated there were only one or two degrees of fever, and she was able to take and retain light nourishment. Pressure on the uterus caused a little pain, and on vaginal examination, on the fourth day, it was found to be prolapsed and enlarged with the os wide. She sat up, with her legs hanging over the side of the bed, on the eighth day, and was able to sit on a chair on the tenth day.

The two points in this case I desire to direct attention to are the following:—The first portion to be reduced was the cervix, and not the fundus; and, secondly, the manner of the reduction, viz., by compression and rotation.

It is almost unnecessary for me to state that inversion of the uterus is a rare condition, and I have not had another case, although on the first examination in a succeeding case I was under that impression. The patient lived in a neighbouring village, and had been attended by a practitioner who had been abroad and out of practice. She had had an abortion, and on entering the room I was almost overpowered by the disagreeable putrid odour. On examination there was a soft, firm, but compressible mass in the vagina, somewhat like an inverted uterus, which, on hooking down and extracting, turned out to be a sponge that had been introduced and forgotten to be removed.

Dr. Jardine said that he had seen two cases of inversion of the uterus. The first had been attended by a midwife. The labour had been quick and easy, and the midwife said that she had not pulled on the cord, but a strong, expulsive pain had suddenly inverted the uterus. When he had reached the patient, within half an hour of the accident, he had found her breathing her last. There had been very little bleeding, so death had been due to shock. The second case had been attended by a doctor, and no traction had been made on the

cord. The shock was very severe, but a saline infusion and strychynine injections tided the patient over this, and she recovered. Traction on the cord he did not think would cause an inversion unless there was a tendency to it. The cord would break first. In deliveries in the erect posture the cord was often broken, but he had never seen an inversion in such cases. Dr. Caskie had spoken of returning the portion near the cervix first. That, of course, was usual, as the last part to come down should be returned first. In reference to the eclampsia cases, Dr. Caskie was to be commended for giving notes of his fatal cases. More was to be learned from failures than from successes. It was too late in the evening to begin to discuss such a wide subject, but he would like to mention two recent cases. Both patients were multiparæ. One had died from suppression of urine of five and a half days' duration. He had tried all the usual methods of treatment, and had also had one of the kidneys decapsulated by Dr. Newman. In both kidneys the cortical areas were filled with infarctions. This patient had had about twelve fits. The second patient had had eight fits before delivery, and one hundred and ninety-nine during the puerperium, but she had recovered. She had been bled and transfused twice, had morphia until her respirations were reduced to 10 per minute, and, finally, he had done a lumbar puncture and taken out half an ounce of fluid and injected one-fifth grain of cocaine. The patient had recovered perfectly, and her child was alive.

Dr. Craig spoke of a case where inversion had occurred after a miscarriage at the sixth month, and the patient died of shock. There had been no interference. He also mentioned a fatal case of eclampsia where there had been no albuminuria at any period of the pregnancy. The patient had suffered from lead poisoning six years before.

Dr. Baird mentioned a case of eclampsia where the shoulder was dislocated.

MEETING VIII.—23RD MAY, 1906.

The President, DR. J. K. KELLY, *in the Chair.*

I.—SPECIMENS.

A. BY DR. NIGEL STARK.

Ovary with abscess. There was no pus in tube. The ovary was adherent to the cæcum and appendix. The opposite tube and ovary were normal.

B. BY DR. A. W. RUSSELL.

1. Large fibroid on posterior wall of uterus, removed on account of severe hæmorrhage from a multiparous patient, aged 40 years.
2. Multiple fibroids of uterus removed on account of pain.
3. Multiple fibroids of uterus with adherent tubes and ovaries.

C. BY DR. J. M. MUNRO KERR.

1. Large unilocular cyst complicating pregnancy. As hydramnios was suspected, the cyst, which was believed to be the distended uterus, was punctured through the abdominal wall at the sixth month, and 6 pints of fluid were removed. The patient was delivered at full time, when the cyst was discovered. It was operated on later.
2. Tubal pregnancy with unruptured tube; oozing into the abdominal cavity.

D. BY DR. J. K. KELLY.

Sarcoma of uterus with early pregnancy.

II.—OVARIAN PREGNANCY, WITH AN ACCOUNT OF A HITHERTO UNPUBLISHED CASE.

By Dr. J. K. Kelly and Dr. A. Louise M'Ilroy.

[Abstract.]

The authors suggested that, if all blood cysts of the ovary were carefully examined, ovarian pregnancy might be found to be more common than was supposed.

A summary of a few of the more important reports of ovarian pregnancy was then given.

The patient from whom the ovary which formed the subject of this investigation was removed, was admitted to the Royal Infirmary with a history of six weeks' amenorrhœa, followed by sudden acute pain in both iliac regions, and a discharge of blood from the uterus. Extra-uterine pregnancy was diagnosed, but as there was no hæmatocele, and it was supposed that rupture had taken place into the broad ligament, operation was delayed. As no improvement took place, the abdomen was opened ten days later, and the left ovary, which was the seat of a blood cyst about the size of a victoria plum, was removed. The blood cyst proved, on microscopic examination, to be a pregnancy. The authors then showed diagrams taken from microscopic sections of the ovum, and drew the following conclusions:—

1. The whole ovisac was composed of ovarian tissue.

2. That the pregnancy had occurred within a Graafian follicle was proved by the presence of lutein cell tissue almost directly adjoining the fœtal epiblastic structures, but separated from them by a layer of fibrin and connective tissue, thus proving the connective tissue as the normal tissue for the embedding of the ovum, whether intra- or extra-uterine.

3. No rupture had taken place in the blood mass, but the point of least resistance was to be found at the lower thinned-out portion, where the pressure of the blood mass had been greatest.

4. The fact that no decidual cell elements were found negatived the statement that pregnancy can only take place on a tissue which has undergone some previous genetic influence.

5. The Fallopian tube was normal. No decidual cells were found in the tube.

6. That pregnancy had originated within the tube. The tube was normal and free from adhesions to the ovary.

[This paper is published *in extenso* in the *Journal of Obstetrics and Gynæcology of the British Empire*, June, 1906.]

Dr. John Lindsay said the authors of the paper were to be thanked for bringing forward this case, as it was the first case of undoubted ovarian pregnancy published in Scotland.

Dr. Munro Kerr said he had listened with great interest to the report of this case, as it helped to clear up some of the doubts as to the embedding of the ovum. It was the first case of ovarian pregnancy published in Scotland, but two and a half years ago he had obtained a similar specimen by operation. The patient had symptoms of extra-uterine pregnancy, with severe pain; intra-uterine pregnancy was also diagnosed. At the operation the enlarged ovary was found with tube intact; a small quantity of blood was found in the abdominal cavity, and the uterus was large and soft. The patient was delivered at term of a healthy child. The specimen showed the ovum to be embedded in the ovarian stroma. A corpus luteum was found, and the ragged remains of an embryo about six weeks old. Dr. Kerr said the question of the fœtal origin of the syncytium was settled by ovarian pregnancy, although this is still disputed by some anatomists.

MEETING IX.—11TH JULY, 1906.

DR. J. W. BALLANTYNE (President, Edinburgh Obstetrical Society) *in the Chair.*

DISCUSSION ON IRREGULAR MANIFESTATIONS OF PUERPERAL SEPSIS.

The annual conjoint meeting of this Society with the Edinburgh Obstetrical Society was held in the Caledonian Railway Hotel, Edinburgh. Professor Stephenson, of Aberdeen, opened a discussion on "Irregular Manifestations of Puerperal Sepsis."

There took part in the discussion Drs. Murdoch Cameron, Sam. Sloan, Oliphant, and Jardine of this Society; Drs. Barbour, M'Vie, Easterbrook, Claude Kerr, M'Nab, and Ballantyne of the Edinburgh Society; and Professor Dickinson, of New York.

The Fellows of both Societies afterwards dined together in the Caledonian Station Hotel, Edinburgh.

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